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PATENTS FOR INVENTIONS.

ABRIDGMENTS
OF
Specifications
RELATING TO
LOCKS, LATCHES, BOLTS, AND SIMILAR FASTENINGS.

A.D. 1774–1866.

PRINTED BY ORDER OF THE COMMISSIONERS OF PATENTS.

BIBLIOTHECA BODLEIANA
34

LONDON:
PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY.
PUBLISHED AT THE
OFFICE OF THE COMMISSIONERS OF PATENTS FOR INVENTIONS,
25, SOUTHAMPTON BUILDINGS, HOLBORN.
1873.

176. c. 34.

PREFACE.

The Indexes to Patents are now so numerous and costly as to render their purchase inconvenient to a large number of inventors and others, to whom they have become indispensable.

To obviate this difficulty, short abstracts or abridgments of the Specifications of Patents under each head of invention have been prepared for publication separately, and so arranged as to form at once a Chronological, Alphabetical, Subject-matter, and Reference Index to the class to which they relate. As these publications do not supersede the necessity for consulting the Specifications, the prices at which the printed copies of the latter are sold have been added.

The number of Specifications from the earliest period to the end of the year 1866 amounts to 59,222. A large proportion of the Specifications enrolled under the old law, previous to 1852, embraces several distinct inventions, and many of those filed under the new law of 1852 indicate various applications of the single invention to which the Patent is limited. Considering, therefore, the large number of inventions and applications of inventions to be separately dealt with, it cannot be doubted that several properly belonging to the group which forms the subject of this volume have been overlooked. In the progress of the whole work such omissions will, from time to time, become apparent, and be supplied in future editions.

This volume contains Abridgments of Specifications to the end of the year 1866. From that date the Abridgments will be found in chronological order in the "Chronological "and Descriptive Index" (*see* List of Works at the end of this book). It is intended, however, to publish these Abridgments in classes as soon as the Abridgments of all the Specifications from the earliest period to the end of 1866 have appeared in a classified form. Until that takes place, the reader (by the aid of the Subject-matter Index for each year) can continue his examination of the Abridgments relating to the subject of his search in the Chronological and Descriptive Index.

The present series contains Abridgments of Specifications relating to locks, latches, bolts, and similar fastenings. The locks comprise alarm, automatic, bank, box, cabinet, changeable, combination, chest, desk, duplex, door, detector, defence, electro-magnetic, indicating, keyhole, locks with curtains; locks with tumblers, levers, &c.; locks for special purposes, mortice, pad, portmanteau, piston, purse, permutation, portable, pneumatic, puzzle, registering, rim, safe, stock, screw, tap, time, transparent, tubular mortice, umbrella, and window. The keys embrace special makes, movable bits, peculiar action, divided, cast, detector, permutation, anti-dust, and screw. The latches include catch, combination, door, drawback, indicator, lock, pendulum, and spring. The bolts comprise floor, latch, lock, piston, sliding, spring, signal, screw, and wedge. The fastenings include automatic, bag, box, cabinet, carriage, door, drawer, movable, pocket, portmanteau, purse, shutter, stair rod, table, till, time, and window.

In many cases inventions, especially those relating to locks and latches, although generally applicable to all makes, are only described by the inventors with reference to one or two particular classes; it is therefore recommended to persons interested in searching that, in addition to such classification, the lists under the headings of locks generally, latches generally, &c., be consulted.

The Abridgments marked thus (* *) in the following pages were prepared for another series or class, but as they also relate to subjects belonging to the present series, they have been reprinted in this volume.

B. WOODCROFT.

June, 1873.

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INTRODUCTION.

AMONGST the skilled industries of South Staffordshire, the manufacture of locks has long occupied a prominent position. It constitutes a most important branch of the hardware trade, being until within a recent date chiefly confined to Wolverhampton, Willenhall, Wednesfield, Walsall, and the adjacent hamlets. In the former towns it may be regarded as the staple trade, and in the latter places it provides occupation for a very considerable portion of the working population. This branch of handicraft, apart from local considerations, presents an interesting subject for inquiry, not only on account of its skilful achievements and its great and increasing commercial importance, but also by reason of its remote history, the art of making locks having been known and practised by the ancients.

The great antiquity of the invention is ascertained and thoroughly established by the frequent mention of locks and keys in works of ancient classical writers and commentators, and also in the pages of Holy Writ. It is recorded in the book of Judges c. iii., B.C. cir. 1336, that after Ehud had stabbed Eglon, king of Moab, he "shut the doors of the parlour upon him and " locked them," and when the servants came they found the doors locked, "therefore they took a key and opened them." Solomon, three centuries later, speaks (Can. c. v., v. 5) of hands dropping myrrh "on the handles of the lock," and in the book of Nehemiah (c. iii. v. 6, B.C. 445) it is stated that at the time of repairing the old gate of Jerusalem, they "set up the " doors thereof, and the locks thereof, and the bars thereof." The remarkable passage in the book of Isaiah (c. xii. v. 22, B.C. cir. 712), "and the key of the house of David will I lay upon his " shoulder," shows that ancient keys differed very materially in size from keys of modern times. Aratus states in his description of the constellation of Cassiopeia "that in shape it resembles a " key." In those early ages, the stems of keys were crooked or curved and often furnished with handles of brass or ivory.

The poet Ariston applies to a key an epithet signifying "one " that is much bent." According to Eustathius, ancient keys were shaped like a sickle, and were frequently carried on the shoulder, a custom confirmed by Callimachus in his hymn to "Ceres," who is represented assuming the form of Nicippe, her priestess carrying a key, "fit to be borne on the shoulder." In Homer we read (Odyssey xxi.) that the heroine Penelope took "a brass key very crooked, hafted with ivory," wherewith to open the wardrobe. Pliny and Virgil attribute the invention of keys to Theodorus of Samos; but this is disproved by other authors, who mention them as having been in use before the seige of Troy.

To the ingenuity of the ancient Egyptians the invention of locks may be justly ascribed. There we meet with the first traces of door fastenings, their use dating back to that remote period of time, 2,000 years before the Christian era, when Pharoahs held their court at Thebes, attended by princes and the insignia of royalty; when magnificent temples were created for their false gods, and the offerings of ivory work and cedar, the gold of Ophir, and the spices of Arabia were presented and deposited in *securely fastened* rooms.

The lock of the highest antiquity ever discovered is that described by Mr. Bonomi as having secured the gate of an apartment in one of the palaces of Khorsabad. He says, "At the end of the " chamber, just behind the first bulls, was formerly a strong gate " of one leaf, which was fastened by a large wooden lock, like " those still in use in the East, of which the key is as much as a " a man can conveniently carry, and by a bar which moved into " a square hole in the wall." It is to a key of this description that the prophet Isaiah probably alludes, and it is remarkable in this passage of Scripture, that the word for key, מפתח (muftah), is the same in use all over the East at the present time. The above ancient lock appears to be identical in its principle of action with the sculptured representation of one discovered amongst the basso-relievo adornments of the Great Temple of Karnac, first described by Eton in his "Survey of the Turkish Empire," published 1798, but not generally known in Western Europe until the French invasion of Egypt at the beginning of the present century, when a furthur account of it and an engraving was given by "Denon" in his great work on that country. He writes respecting it as follows:—"I have placed it among the

" antiques because it is the same kind of lock that has served " the Egyptians for 4,000 years. I found it sculptured in one of " the grand old temples of Karnac; it is simple in construction, " easily made, is secure as other locks, and would serve well for " all rustic purposes." It has been discovered that at Thebes the Egyptians sealed these locks with clay. According to the engraving in "Denon's" work, the bolt slides in a cross piece wherein is disposed a number of headed pins which, when the bolt is shot, fall into holes made in its upper frame; the key has a corresponding number of pins, which when it is introduced, are made to lift the pins in the cross piece, and thus set the bolt free for withdrawal.

An incident worthy of notice is related by Mr. J. F. Jones, B.A. in the account of his travels in Upper Egypt. It happened during a visit to an old temple built by the Cæsars at Esneh, on the Lybian side of the Nile, about a day's journey from Thebes. " We were at the portico by seven in the morning, and, instead " of being allowed to walk in as usual, we found it closed against " us, the place being now a Government granary. We insisted " upon the door being opened, though it was some time before " we could get in; no one would go for the key or say where it " was; then some one said it was lost, so as to have some claim " upon us for "backsheesh." However, it turned up at last, and " a wonderful affair it was—a long wooden bar with some pegs " at one end, which conferred upon it the mysterious power of " opening the Pasha's big door."

According to Propertius, and Eustathius' commentary on the Odyssey, the earliest locks were not fixed, but removable after the manner of our padlocks, and were linked to chains and staples affixed to the door post. Eustathius also in his notes on the tenth Book, attributes the invention of keys to the Lacedemonians, the lock subsequently invented by that ancient people and styled the "Lacedemonian," being much celebrated by early writers. This lock was especially adapted to inner doors, and in process of time it was improved by the insertion of the bolt in an iron frame or rim, permanently attached to the door by a chain, and fastening the door by the insertion of the hasp, through the eye of which the bolt was forced by the application of the key. Montfaucon says, the doors of the ancients had many bolts moved by chains, secured by a chainlock. The padlock has always been in favor as a fastening with the Greeks and

Romans, and the nations of the East. There is a lock and the key belonging to it of this kind in the British Museum; it was found by Mr. Rich in a tomb at Rome, as also part of another lock with the key embedded in rust. In all probability the movable lock succeeded the primitive locks constructed with sliding bolts, and it seems to form the connecting link between the earliest locks and those of more recent date. A great many of the keys of olden times have been found at different periods, most of them are of bronze, but some are made of iron; many of these keys have numerous wards peculiarly shaped, extending considerably up the shank, and belonging without doubt to warded locks which, judging from the intricate arrangement of the ward-bits of their keys, must have been most elaborately contrived. Lipsius in his comments on the second Book of Tacitus, is the first to allude to the ancient usages respecting keys, which in some cases he states to have had a ring adapted in size for the purpose of being worn on the little finger, and engraved to answer the purpose of a seal, and Garlæus in his Dactyliotheca, gives (42nd section) an example of a key, the wards of which are similar to modern keys; and suitably mounted on the ring, which was adapted to the finger, was an onyx engraved with the helm of a vessel between two ears of corn, typical probably of the occupation of the wearer. Most of the other early writers agree in stating, that the Greeks and Romans learned the use and construction of locks and keys from the Egyptians; it may therefore be accepted as a fact, that from that ancient people they did derive their first knowledge of the invention, and it is an incidental circumstance regarding these ancient locks worthy of remark, that their form and principle of construction may be traced in locks of the present day.

That mechanical contrivances for securing doors (essentially locks with keys) were in use by the Romans at a later period, is beyond question, for the keys found at Herculaneum and Pompeii, and those attached to rings, prove that a kind of warded lock must have been well known, traces of a lock still remaining there on the marble door of a tomb. In the year 1689, during the progress of some excavations on the plain at the foot of Vesuvius, on the spot which subsequently proved to be the site of Pompeii, a workman observed the regularity with which the successive layers of earth and volcanic matter were deposited. Under one of these masses of scoria, dust, and pumice stone, he found a quantity of timber, locks, and iron work, evidently the remains of ancient habitations, which, together with a number of old keys, and inscriptions giving the name of the locality, assisted to satisfy the antiquarian of the day, that this discovery fixed the locality of the ancient city. Several of these ancient keys have been engraved, and are exhibited in Mr. Price's work on safes and locks; also some specimens of Roman keys found in various parts of England, and now deposited in the British Museum.

Warded locks mentioned in early manuscripts, rank next to the Egyptian lock in antiquity; these locks are generally constructed of metal, and frequently contained some complex arrangement in regard to the introduction of the key. Fine specimens of warded locks were produced during the medieval age, remarkably elaborate in execution, excellent and chaste in design.

To the Chinese is ascribed the invention of another ancient lock having movable wards or tumblers. In an old Chinese book, this lock is described as having sliders and tumblers of different lengths. It was originally constructed of wood, and for many centuries has been extensively used throughout the celestial empire.

By some authors the invention of the permutation lock is erroneously ascribed to M. Reignier, a French locksmith of repute at the end of the seventh century, and by others it is supposed to be a Dutch invention. It is mentioned in the play of the "Noble "Gentleman" which was printed in the year 1615, and by "Carew" a few years later. The permutation locks were used generally as fastenings for couriers' dispatch boxes. The principles of construction embodied in these four ancient locks, viz., the Egyptian, warded, tumbler, and permutation appear (separately or combined) to constitute the chief foundation whereon a large proportion of the improvements and inventions relating to the lock trade of modern times is undoubtedly based.

The Celtic nations used locks of wood with bolts and notches acted upon by keys. An old lock of this description is preserved in the Museum of Antiquaries at Edinburgh, said to be intricate in construction and not easily described. "Fosbroke" says, "wooden locks are common in the Highlands of Scotland, "artfully contrived with wooden notches, which can only be "opened by the wooden keys that belong to them."

It is generally supposed that we are indebted for the introduction into England of this particular branch of industry to those

Phœnician merchants who, in the infancy of the commerce of this country, traded with the Cornish miners. The Egyptian lock was the first introduced, and it is a singular and interesting fact, that articles of a similar description may still be found in the Faroe Islands, and in some parts of Cornwall and Devon.

These locks, as also their keys, are (according to the notice of them by Mr. Price) "made entirely of wood, of which material, if " I mistake not, they have also been found in Egyptian cata-" combs, and so identical with the Faröese in structure and " appearance, that it would not be easy to distinguish one from " the other."

As early as the 12th century, English-made locks were tolerably secure and considerably ornamented, but no reliable information exists as to the period when the manufacture commenced, altho' it is conjectured that rough specimens were produced by British artisans before the time of Alfred. From the 14th to the end of the 16th century, great advances were made in the constructional details and finish of locks, the mechanical devices became more complicated, and the manufacture partook somewhat of the excellence displayed by the smiths and workers in iron and steel, who then acquired such well-deserved renown in the production of swords, shields, and other military equipments. A specimen lock of the 14th century, may still be seen in the parish church of Snodland, Kent, and in Winchester Cathedral there is a metal lock mounted with brass ornaments and very massive. An entry in the book of accounts of the Manor of Savoy, published during the reign of Richard I., records the purchase of "two stock lokkes, price xx*d*., and two hange lokkes, (padlocks) price xvj*d*."

In the 16th and 17th centuries, in Germany, Italy, France, and England, a profusion of decorative art was displayed in the manufacture of locks, and the handles of keys were greatly elaborated, forming scrolls and other ornamentation more or less elegant in design, according to the destination of the lock to which they belonged, whether for ordinary purposes of security, or as fitting furniture for the magnificent cabinets produced at that period of time. This kind of work was performed by means of small files, the interstices between the parts left to form the design being first perforated by fine drills. Many remarkable specimens of these ornamented keys are still to be met with in use in old mansions and nobles' residences. Marlborough House contains many of such locks, having keys with bows and handles elaborately worked and so skilfully and artistically finished, that no workmen of the present day could equal without first educating himself for the work, and even then, only the most skilful, possessing also artistic abilities of no mean order, could accomplish it.

The Marquis of Worcester, in his "Centurie of Inventions" thus describes the first detector lock, invented A.D. 1640, by some mechanical genius of the day. "This lock is so constructed " that if a stranger attempt to open it, it catches his hand as a " trap catches a fox, though so far from maiming him for life, " yet so far marketh him, that if suspected he might easily be " detected." It appears that to this lock was fitted a steel barb, which if a certain tumbler was overlifted in the act of picking or otherwise, was projected from the keyhole against the hand of the operator by a spring.

In Northamptonshire, on the inner door of the house where the poet Cowper spent many of his reflective hours, was a brass lock of quaint design and superior workmanship, the principal feature of the ornamentation consisting of a mezzo-tinto figure, clad in jerkin and a cavalier's hat, and holding a gun. One of the legs, which was movable, covered the keyhole. The maker's name inscribed was Johannes Wilkes, Birmingham. The date of this lock was supposed, by the style of the costume, to be about the end of the 17th century.

Some locks have been noted for their minuteness, and others on account of their great size. One of the latter at Ockwell's Hall, near Taplow, is noticed in Miss Mitford's "Recollections." It was fixed on an iron studded door, and was several feet in length. The key required the strong arm of a man to wield it and turn the massive bolt.

Many rare achievements, in the production of locks and keys, the work of skilful and ingenious hands, have been exhibited at various times, and amongst them some have been remarkable for their minuteness. At the exhibition of British manufactures held at Birmingham in the year 1849, Mr. Chubb exhibited one of his patent detector locks set in a gold finger ring, the lock and key weighing only 16 grains. At the great exhibition of 1851, Mr. Aubin exhibited, as the work of his two young sons, a four-lever padlock, three-32nds of an inch in diameter, or small enough to enclose in a hemp-seed husk; the key in length measured ¼ of an inch. In "Shaw's Staffordshire" is mentioned the production in the year 1776, by James Lees, of Willenhall, aged 63 years, of a miniature padlock and key that did not equal the weight of a silver two-pence, and another lock of iron [that was not the weight of a silver penny, he (Lees) being at that time engaged in making the key out of the same metal. But the above examples of minute handicraft are large compared with the minute achievement in the year 1578, of one Mark Scalist, or Sealist, who was a London blacksmith, and succeeded (as recorded in an old paper) in making in iron, steel, and brass, a lock comprising eleven pieces and a pipe key, which only weighed altogether two grains.

Mr. Tomlinson in his "Rudimentary Treatise on the Con-" struction of Locks" says, the manufacture of locks, and a consideration of the mechanical principles involved in their construction and security, has never yet in any English work been treated with that degree of fullness which the increasing importance of the subject, and that particular branch of trade demanded; and although it is a notorious fact that locks invented in this country have been minutely described and illustrated in various foreign treatises, at home nearly all the published articles respecting locks prior to the year 1856 are to be found in the Encyclopædias* and similar works, describing locks with as much detail as could possibly be expected to be done within the limits assigned to that particular subject. Bramah's essay on his own and other locks was published in the form of a pamphlet; an interesting paper was furnished in the year 1850 to the Institute of Civil Engineers by Mr. Chubb, a paper by Mr. Higgin was read at a meeting of the Philosophical Society in Manchester, and concise reports of other papers and lectures have from time to time been published in various ways. But in the above year (1856) a voluminous and most able treatise on fire-and-thief-proof depositories and locks and keys, the production of Mr. George Price of Wolverhampton, was published. In this work the author not only refers to all the historical facts and points of interest which have come to our knowledge regarding the locks of ancient times, but in continuation of this section of his work, has carefully described and illustrated the locks known to be in use prior to the reign of James the First, at which epoch the issue of Grants of Letters Patent for Inventions commenced; and he then enters most comprehensively into the comparative merits of all the more modern inventions, most of which are, down to the year of the publication of his book, clearly illustrated and critically described with an amount of fairness and candour, much to the credit of the author, who is himself a patentee and practical manufacturer of safes and locks.

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* *Encyclopædia Britannica, Rees' Cyclopædia, Heberts' Engineers' and Mechanics' Encylopædia, Penny Cyclopædia, and* Tomlinson's *Cyclopædia of Useful Arts and Manufactures.*

The tide of invention, relating to the construction of locks, did not freely begin to flow in this country until towards the end of the last century, the first lock that was patented, dating A.D. 1774; and in the year 1778, to Mr. Robert Barron, a patent was granted for an invention of a lock, which subsequently rendered his name famous in the annals of lock making, the security of the lock being effected with fixed wards in combination with lifting tumblers.

In the year 1784 Mr, Joseph Bramah patented a lock, the invention of which attracted great public notice. In this lock the operation of the key combines a pushing and rotatory movement, and altho' the lock differs materially in form, Bramah's having a rotating barrel, the principle of action is very similar to Barron's lock, the security of one depending upon the adjustment of a series of self-deranging slides, and of the other upon the adjustment of self-deranging tumblers.

To Mr. Jeremiah Chubb, the merit is due of having introduced the real detector lock, which he invented and patented in the year 1818. Subsequent modifications, additions, and practical improvements, have been made upon the original by his successors in business, retaining the peculiarities of the former invention, the detector being the great speciality, whereby "Chubb's lock" is so well and deservedly known.

These locks like those of the other makers previously referred to, are made in series, there being a separate key to each lock, and a master key capable of opening as many of the series as may be required. Some of the more modern makers also pursue the same system.

A most complete series of these locks was made some years since by Mr. Chubb, for the Westminster Bridewell, consisting of a great number of locks, with keys for the master, sub-master, and wardens. The governor has the power at any time of stopping out the under keys, and if through any surreptitious attempts to open a lock the detector be thrown, none but the key in possession of the governor will regulate it, so that the circumstance must become known. Barron's, Bramah's and Chubb's, locks are made for general purposes, from a minature cabinet to the most ponderous fortress gate.

Other patented locks of later date have obtained for their inventors considerable celebrity, and many, the productions of ingenious minds and skilful hands, remain unknown, never having been brought into practical use. Amongst the former may be noticed Carpenter and Young's lock, in which the latch bolt had vertical instead of horizontal action; these locks, as subsequently improved by Mr. Carpenter, are known as Carpenter's locks in all the markets of the world down to the present day.

The first changeable lock patented in England, was the invention of Mr. Thomas Parsons, whose name is also celebrated in the history of locks. The elevation of the tumblers in this lock is regulated by a screw, which changes the positive, but not the relative position of the tumblers. To Mr. J. Sanders, of Burton, we are indebted for one of the first locks with movable tumblers, which traversed with the bolt, and amongst the other inventions patented and otherwise, which have survived the test of time and competition, may be mentioned Aubin's revolving curtain which closes the keyhole during the rotation of the key, and the locks of Cornthwaite, Rowntree, Baillie, Turner, Bullock, Daniels, Lawton, Scott, Ruxton, Duce, Toy, Walton, Price, Tildesley, Newell, Tann, Cotterill, Taylor, Tucker, Restell, Chatwood, Somerford, De la Fons, Parnell, Hobbs, Gibbons, Wolverson, and others all more or less deserving of special mention if the limits of this article would permit.

At the Great Exhibition of 1851, Aubin's Lock Trophy was undoubtedly one of the most ingenious pieces of mechanism exhibited; it was made by a working locksmith, and according to the notice of it in the Official Illustrated Catalogue, it is there described as "Specimens to illustratate the rise and progress of "the art of making locks, containing forty-four different move- "ments by the most celebrated inventors in the lock trade." This trophy of lock-making ingenuity and skill was purchased by Mr. Hobbs the American, who appears to have entertained for it a just appreciation of its value.

It was during the Exhibition year that the "lock controversy" reached its culminating point, and lasted during the succeeding three years. Mr. Price in his work gives a most particular and detailed account of the correspondence and subsequent proceedings at the different successful and unsuccessful picking ordeals and experiments, showing first how the locks of Bramah; Chubb, and Parsons respectively in the years 1817, 1832, and 1834 successfully withstood the picking test, and were considered inviolable until Mr. Hobbs from America, where lock-picking is studied and practised as a science, visited England during the Exhibition year, and succeeded after sixteen days of patient perseverence, in picking the Bramah lock, for which achievement he became entitled and received the premium of 200 guineas, which for many years Bramah & Co., having the fullest faith in the inviolability of their lock, had offered to any person who could produce an instrument capable of opening it. Mr. Hobbs also succeeded in picking Chubb's lock, and also the locks of other manufacturers. These startling results must in a manner be attributed to an apathetic feeling of false security at that time on the part of our lock makers, for although the very principle by which the Americans operated when picking locks was known and published here some years previously by Mr. Ainger in the "Encyclopædia Britannica," no one until the advent of Mr. Hobbs had profited by the warning.

The "Times" of September 4, 1851, when publishing a certificate verifying the picking of one of Chubb's locks by Mr. Hobbs, makes the following remarks :—" The lock controversy continues " a subject of great interest at the Crystal Palace, and indeed is " now become of general importance. We believed before the " Exhibition opened that we had the best locks in the world, and " among us Bramah and Chubb were reckoned quite as impreg" nable as Gibraltar; more so, indeed, for the key of the Medi" terranean was taken by us, but none among us could penetrate " into the locks and shoot the bolts of these makers. The me" chanical spirit, however, is never at rest, and if it is lulled into " a false state of listlessness in one branch of industry, and in " one part of the world, elsewhere it springs up suddenly to " admonish and reproach us for our supineness. Our descendants " on the other side of the water are every now and then adminis" tering to the mother country a wholesome filial lesson upon " this very text, and recently they have been 'rubbing us up' " with a severity which perhaps we merited for sneering at their " shortcomings in the Exhibition. While we have been relying " implicitly upon the artful arrangement of 'tumblers' and such

“ like devices, they have been carefully developing their ingenuity
“ in picking and opening locks. A man makes a lock, and he
“ brings it to a mechanics' institute in New York, with a certain
“ sum of money secured by it, which sum becomes the property
“ of the successful operator who can shoot back the bolt of the
“ new contrivance. Instantly astute heads and clever expert
“ hands are engaged in solving the mechanical riddle thus pro-
“ pounded to them, and so far have these dexterous manipulators
“ carried their art, that their 'open sesame' sweeps springs,
“ tumblers, false notches, letter devices, and everything else
“ before it. Mr. Hobbs is by far the most accomplished and
“ successful of these performers, and he has come over to this
“ country at a very opportune moment to teach our makers a
“ very useful lesson. It is well known, however Mr. Chubb may
“ wrestle with the statement, that Mr. Hobbs has succeeded by
“ perfectly fair means in opening his locks as they have hitherto
“ been made. No formal and deliberate trial has taken place
“ between them to establish the fact, but it nevertheless remains
“ undoubted, and the sooner Mr. Chubb improves his patent
“ so as to set Mr. Hobbs at defiance, the better for his own
“ interests.”

On the subject of lock-picking Mr. Hobbs has made the following statement:—“ Whenever the parts of a lock which
“ come in contact with the key are affected by any pressure
“ applied to the bolt, or to that portion of the lock by which
“ the bolt is withdrawn, in such a manner as to indicate the
“ points of resistance to the withdrawal of the bolt, such a lock
“ can be picked.” All these assailable and vulnerable points in the construction of their locks were revealed to our makers by the train of circumstances which happened during the Great Exhibition year. By this discovery their enterprise and ingenuity were stimulated afresh, and they seem to have lost no time in turning the fact of their defeat to a profitable account, for during the latter part or revival of the lock controversy, they were able to produce locks that baffled all the ingenuity of that celebrated American locksmith Mr. Hobbs to open them, whilst in turn Mr. Goater, in the employ of Messrs. Chubb and Son, succeeded in picking the locks of Hobbs & Co.

The last and only unsuccessful public attempt made on a lock by Mr. Hobbs, took place in Manchester, in the month of April 1854, in the presence of Mr. Richard Roberts and others. The lock in question called the "Patent Climax Detector" was furnished by the Patentee, Mr. E. Cotterill, of Birmingham, whose cheque for 52*l.* 10*s.* was drawn and in the hands of the arbitrators to be presented to Mr. Hobbs in the event of his success, twenty-four hours being the time allowed by the written agreement between the parties for the experiment. Mr. Hobbs worked all the remainder of that day and a greater portion of the night, but notwithstanding his well-known talent and ingenuity at such work, and the fifty guineas which his success would have enabled him to claim, he a few minutes before the expiration of the allotted time gave up the task, exclaiming as he quietly arose "The lock's yours; I give it up."

The manufacture of locks was introduced into South Staffordshire, as early as the reign of Queen Elizabeth, but it did not flourish as one of the chief staple industries of the district until the end of the 17th century. Dr. Plott, writing A.D. 1686, says of Wolverhampton. "The greatest excellency of the black-" smith's profession in this county lies in their making of locks " for doors, wherein the artisans of Wolverhampton seem to be " preferred to all others, they making them in suites, six, eight, " or more in a suite, according as the chapman bespeaks them, " whereof the keys shall neither of them open the other's lock, " yet one master-key shall open them all. Nay, so curious are " they in lockwork, that they can contrive a lock that the master " or mistress of a family sending a servant into their closets, " either with the master-key or their own, can certainly tell by " the lock how many times that servant has been in, at any " distance of time, or how many times the lock has been shot " for a whole year together, some of them being made to shew " it 300, 500, or 1,000 times,—nay, one of the chief workmen of " the town told me he could make one that should shew it " 10,000 times. Further yet, I was told of a very fine lock, " made in this town, sold for 20*l.*, that had a set of chimes in it, " that could go at any hour the master should think fit. And " these locks they make either with brass or iron boxes, so " curiously polish't, and the keys so finely wrought, that 'tis not " reasonable to think they were ever exceeded unless by Tubal " Cain, the inspired artificer in brass and iron."

A century later, Dr. Wilkes in his writing, pays an equally flattering tribute to the skill of the Wolverhampton artisans, and estimates the number of locksmiths in the town at that time to be 134. The character of the lock trade of Wolverhampton, and Willenhall, is in a great degree distinct from the style of locks made in the other towns and places in the district, the security of the locks of the two towns above-named, being generally secured by tumblers and levers, whilst those of other localities depend more upon fixed wards.

Not many years have elapsed since it was the custom of lock makers to furnish all strong locks, having large heavy bolts, with keys of corresponding strength and size; but of late years the mode of throwing the main fastenings (which vary in number, especially in safe fastenings, from one to a dozen or more bolts) by means of a central or otherwise disposed knob or handle has been introduced, the bolts being actuated and moved in various directions by means of eccentries, levers, or other mechanical contrivances mounted upon the spindle or connected therewith; when forced home, these main bolts are secured or interlocked by the bolt of a small unpickable lock of approved construction, the key of which may take its place on the ring amongst the ordinary keys of the pocket bunch.

In the year 1866, the total weekly production of locks in the district was estimated as follows:—Pad, 24,000 dozen; cabinet, till, and chest, 3,000 dozen; rim, dead, mortise, and drawback, 3,000 dozen; fine plate, 1,000 dozen, and secure levered and other descriptions, 500 dozen, being an aggregate production of 31,500 dozen locks per week. Since the date of the Great Exhibition of 1851, the manufacture of locks has gradually extended to Lancashire, London, and other districts, and although the Americans, who were formerly our largest customers for locks, are now almost wholly supplied by their own makers, the loss is more than compensated by an increasing demand for India, Canada, Australia, New Zealand, China, parts of the Continent, and South America.

LOCKS, LATCHES, BOLTS, AND SIMILAR FASTENINGS.

A.D. 1774, May 27.—N° 1071.

BLACK, George.—This invention relates to a door lock and latch, capable of raising a lower part of a door, made loose for the purpose of opening freely over a carpet, or of admitting air to a room whilst the door is closed. To this end the door is to be made somewhat shorter than the door frame, so as to leave when hung an open space beneath it, and this space is opened or closed by means of a door piece, which makes up the full length of the door, and is made to slide up and down by the movement of a tumbler or other contrivance connected with the lock or independent of it, and made to communicate with the moveable bottom piece of the door by the aid of thin iron rods, which pass up within the door to the center rail, their lower ends being attached to the door piece. Various contrivances connected with the door lock or otherwise are devised for lifting the piece, which according to the first plan described, is effected by the turning of a handle or knob, which operates a tumbler and bolt "there is a spring and a catch and latch bolt set upon " the same plate which the tumbler and bolt are. The latch " bolt, with the spring and catch to it, works in this way. When " the door is open, the catch will go into a nick or hole in the " large bolt, and prevent it from shutting until the door is shut, " and by shutting the door, the latch bolt is pushed back by the " doorpost; then the catch is loose from the bolt, so that, being " then at liberty, the door will shut itself without assistance."

Describes a mode which, acting by means of a spring, raises the door piece without a handle as the door opens, and lowers it as the spring relaxes when the door is closed; also a contrivance for fastening a door from the inside.

[Printed, 4*d*. No Drawings.]

A.D. 1774, July 19.—N° 1075.

MARTIN, Joshua Lover.—This invention relates to a spring screw fastening for window sashes. The parts consist of a piece through which there is a hole, screw-threaded to receive a screw that carries a spiral spring, and has on the plain end of its shank an ornamental knob; this piece is fastened to the back sash, and according to the apparent application of the parts, which are very concisely described and not clearly illustrated, the screw is intended to pass through the top rail of the bottom sash, and by screwing into the back piece form a sash fastening.

[Printed, 6*d.* Drawing. See Rolls Chapel Reports, 6th Report, p. 162.]

A.D. 1778, October 31.—N° 1200.

BARRON, Robert.—This invention relates to the construction of a lock which the inventor states is "far more secure than any " hitherto made." It is described as follows:—

"An improvement on the tumbler and spring by means of a " stub or projection so exactly fitted to a passage or opening " in the bolt as not to permit the bolt to pass unless the said " projection or stub is carried exactly opposite the opening or " passage in the bolt, which can only be done by its proper key. " As the said projection or stub is at liberty to pass the said " passage or opening in the bolt in another direction at the end " of said passage or opening by placing the projection or stub " on the bolt, and having the passage or opening in the tumbler " or spring, the same security may be obtained. One, two, three, " or more of said tumblers and springs may be us'd in the same " lock, and may be of different sizes, so that the part which comes " in contact with the key at the time of opening or shutting the " lock may unequally distant from the centre of the pipe or pin " of the key, and which will admit of many different forms in " what is called the bit of the key."

[Printed, 4*d.* No Drawings. See Mechanics' Magazine, vol. 7, p. 232; also vol. 30, p. 71; Engineers' and Mechanics' Encyclopædia, vol. 2, p. 104.]

A.D. 1779, May 28.—N° 1226.

HENRY, Solomon.—This invention relates to "apparatus to " act as a universal lock or bolt for fastening doors or openings " of all kinds whatsoever, and which apparatus is so constructed

" as to render it impossible for any person either to pick or open " the same, unless they have the key thereunto belonging, the " whole of which being upon a principle new and advantageous."

The apparatus as described and exhibited is adapted to a street or warehouse door, and to padlocks. As regards the former, it is fixed in the middle of the door and is capable of shooting six bolts, three on each side. It is furnished with a receiver into which a detector ball, put into the pipe of the lock or bolt, falls when a pick-lock or other instrument has been applied. There is also fitted in the pipe of the lock a piece of leather so cut and contrived, that if any impression is attempted to be taken of the wards by means of a smoked blank, the latter could not be passed in without being smeared. "The wards of these locks " and bolts (upper and under) cover each other, and thereby and " by means of an irregular ratchet serpentine ward," prevent the passing into them of pick-lock keys or other instruments.

A desk lock fitted with a receiver is exhibited on the drawing. Padlocks are described and shown fitted with a receiver for the detector ball, the serpentine ratchet and other wards; a guard which covers the key hole or pipe is opened by a spring catch; a loose bit with wards is jointed to the key, which bit falls when the key is inserted in the lock; a number of key hole pipes, varying in internal configuration are shown; the handle of the key is fitted with a bit for opening the spring catch, and the keys are fitted with a tubular cap to cover the loose wards, which cap when the key is about to be used, is made in some cases to form a handle inserting it partly through an eye formed at the end of the key shank.

[Printed, 10*d*. Drawing.]

A.D. 1780, March 4.—N° 1247.

AMPION, JOHN.—This invention, relating to the construction of locks and latches, has for its object security against pick locks, and the exclusion of dust. To this end when the key is withdrawn, the key hole is closed by an internal latch, which falls over the opening. When any other than the proper key is inserted, a lever projecting from the latch is lifted and locked between projecting studs on the bolt, which is thereby secured. The end of the drill pin which passes through the escutcheon is made very small, and a hole is drilled up the stem of the key to receive it, the body of the drill pin and the barrel of the key being of the ordinary size.

Describes and exhibits "a cabinet lock with its proper key " introduced into the key hole which permits the latch to return " to its place and the lock to be opened."

"Latches for doors are made guarded in the like manner as " the lock, and so contrived as to raise and let fall a bolt or bar " into the floor which will add great strength and security to " doors."

[Printed, 6*d*. Drawing. See Rolls Chapel Reports, 6th Report, p. 164.]

A.D. 1782, January 18.—N° 1317.

HUTCHINSON, SAMUEL.—This invention, relating to a " solid " warded lock and key which may be applied to every kind of lock " and cannot be picked " is described by the inventor as follows :—

" The wards to fit into each other, convex and concave, of a " strong and solid substance; the opening within-side the lock is " filled up in such a manner as to leave no more room that what " is sufficient for the key to pass between, and the nose of the " key may be made to correspond with the shape of the ward. " The wards are made of copper, brass, grain tin, pewter, lead, " iron, or any other metal, of various shapes and sizes, and may " be made of either wrought or cast metals, and turned in a " lathe or furnished with a tool. The wards and keys may be " used to any kind of lock, with or without a bridge, with a back " spring to the bolt, or one or more tumblers."

[Printed, 4*d*. No Drawings.]

A.D. 1784, April 2.—N° 1430.

BRAMAH, JOSEPH.—This invention relates to locks designed to resist the efforts of pick-locks, false keys, and other counterfeit means of opening. To this end the locks described have a greater or lesser number of movable parts, such as levers, sliders, etc., each requiring a distinct change in position before the bolt and other parts of the lock constituting its safety can be moved or set at liberty, the levers, sliders, or moveable parts having by gravitation, springs, or otherwise, the power of recovering their normal position after having been forcibly deranged. The principle of the invention is described with reference to a diagram, wherein six sliders are shown; these sliders in their normal position fall into six notches made in a sliding bolt, and each slider has cut in its underside a notch corresponding to the size of the bar, but the distance of the notches from the ends of the sliders severally differs, so that no two are alike, and the bolt cannot have liberty to move until all the notches are brought into coincidence in a direct line therewith; this is accomplished by an instrument furnished with projecting pieces, and intended to represent the action of a key. These projecting pieces vary relatively just so much in their projecting length, as the notches in the several sliders vary in distance from their respective ends, the notches and projecting pieces being so arranged to correspond that when the projecting pieces are pressed against the ends of the sliders, the latter are gradually taken up, one after the other, so that at the end of the action all the notches are brought into coincidence directly over the bolt, which is then free to move.

It is computed by the inventor that a lock having twelve sliders is capable of four hundred and seventy-nine millions one thousand five hundred different changes, and one with thirteen sliders six thousand two hundred and twenty-seven millions nineteen thousand five hundred changes, so that a similar number of keys would be required to open them respectively under all their variations.

A lock is described having a tubular key, the sliders being mounted in a revolving barrel, but the invention is not confined to any precise form of lock, number of sliders, or arrangement of the movable parts.

[Printed, 8*d*. Drawing. See Repertory of Arts, vol. 5, p. 217; Mechanics' Magazine, vol. 30, p. 71; Engineers' and Mechanics' Encyclopædia, vol. 2, p. 104.]

A.D. 1785, November 17.—N° 1510.

STEDMAN, JOHN.—This invention relates to "sympathetic "hinges and quadrants for holding doors, gates, and shutters, "with new-invented fastenings for the same." The hinges are adapted to double-folding doors, and are for the purpose, when one part or half of the door is opened or closed, of causing the other half or part to open or close at the same time. This object is accomplished in various ways by apparatus fixed either at the top or bottom of the axes of the two sections of the door.

1st. By means of pulleys and crossed chains; the pulleys are fixed on the end of the door axes, and the chains are so fixed to wind round the pulleys that, when either half of the door is opened or closed, the other half is moved simultaneously.

2nd. By cross-heads on the door axes, in combination with levers which cross each other, and are respectively jointed to the ends of the cross-heads.

3rd. By a pair of toothed quadrants, which engage with each other, and are mounted respectively, one on the axis of each section of the door.

4th. By toothed pinions on the door axes engaging respectively with two racks attached to the ends of a cranked bar.

The fastenings of which several are described are adapted to folding doors opening either one or both ways in the manner above described; they are intended to be fixed in mortice cases, one part of the fastening apparatus being let into one section of the door, and the other part into the other section, the two parts being coincident in height, so as fairly to correspond. When the key or handle is turned, the bolt which, when the doors are closed has been projected from the part of the fastening in one section of the door into the other half of the fastening in the other section of the door, is withdrawn simultaneously with the withdrawal of two long bolts, which reach respectively, out of sight, to the top and bottom of one section, and project, when the doors are closed, into bolt holes made one in the floor, and the other above the doors in the door casing.

[Printed, 1*s*. Drawing. See Rolls Chapel Reports, 6th Report, p. 172.]

A.D. 1788, January 15.—Nº 1636.

ANGELL, JAMES.—This invention relates to the fixing of the working parts in communication with bells, night-bolts, and door latches. The apparatus is for the purpose of changing the direction of the wire which transmits the pull. It consists of a small wheel suitably grooved round its periphery to form a bed for a small chain or chains, which pass more or less round the wheel and lead off at a right or other angle according to the fresh direction the pull is required to take, the wires forming the intermediate communications, their ends being fastened respectively to the ends of the chains. The wheels in some cases are mounted on pivots fixed between the sides of a small frame carried on the end of a shank, which is screwed to enter the wall or place where it is required to be fixed, and the wheels are also shown mounted on pivots formed on the ends of spikes or projecting laterally therefrom, means being provided to prevent the slipping of the chain out of the groove of the wheel.

[Printed, 6*d.* Drawing.]

A.D. 1789, July 7.—Nº 1692.

CORNTHWAITE, Thomas.—This invention relates to a lock and key, which is stated to be "much stronger and safer, and "less liable to be out of repair." The lock comprises two inverted tumblers depending on fixed pivots, one on each side of the key-hole; the free ends of these tumblers work into the bolt as they are caused to diverge by the circular motion of the key, the barrel of which turns on a center pin, and has wards projecting radially from opposite sides, the key-hole requiring to be made accordingly. A cover, movable by the key and returned by a spring, has a stud at each side; these studs enter notches in the bolt, and they only permit the latter to shoot when they are disengaged by the moving of the cover, there being between the bolt and cover a fixed ward plate, which enters the sectional divisions in the key.

[Printed, 6*d.* Drawing.]

A.D. 1790, February 23.—Nº 1730.

ROWNTREE, Thomas.—This invention relates to the construction of locks, and fastenings for windows and shoes. It consists of,—

1st. A lock containing, in addition to the ordinary tumbler and bolt, two, three, or more metal discs, notched at the opposite sides and concentrically mounted to move freely on a fixed pivot; also a similar number of leaves or small levers mounted on another fixed pivot, their free ends respectively engaging in one of the notches in each disc, each lever being kept down by a spring. The key suited to the form of the edge of the levers on which it acts, lifts them simultaneously, and brings the notches in the opposite edges of the disc into coincidence, so as to permit the common tumbler of the bolt to pass and project or withdraw the bolt.

Modifications of this lock are described and illustrated.

2nd. A lock with two or more movable wards consisting of circles or parts of circles, each ward having two inclined planes, one on each side of the key-hole, and shanks or pieces radially fixed projecting from their opposite sides, one shank of each ward being free to move on one common joint pin; the opposite shanks are notched to permit the passage of the bolt when the notches are brought into coincidence by the proper key. Several modified arrangements of this lock are also described and exhibited.

3rd. A fastening suitable for windows, comprising a circular wedge or hook so formed with inclines that, when turned into the eye or staple, by means of one incline, it draws the sashes together horizontally, and, by means of another incline, they are adjusted vertically and fastened. Also a side fastener which acts by means of inclines.

2nd. Two modifications of fasteners for securing the strap leathers of shoes.

[Printed, 1*s*. Drawing.]

A.D. 1790, October 29. —N° 1778.

BIRD, Moses.—This invention relates to "a guarded lock, bolt " or box, to be applied to the bolt for the better securing of locks, " latches, bars and turnbuckles." The apparatus, which forms a portion of the internal fittings of the lock, consists of one or a series of "levers or sliders," which act independently but collectively to detain the bolt, they are raised simultaneously by a corresponding number of parallel pieces, laterally projecting from the shank of the key in varying lengths and with intermediate spaces, constituting the key ward-piece. When the key is turned the ends of these pieces pass through a fixed "grating," and then come into contact with the levers, the ends of the whole number of which center loosely on a fixed stud. The several projecting lengths of the pieces of the key-wards, and the form of the under edges of the levers are so made to correspond, that when the ward-piece comes into a vertical position all the levers are raised to a uniform height, and the bolt is then free to move. The parts are concealed from observation by a suitable covering plate. Modifications adapted to locks, bolts, and latches, are exhibited and described.

[Printed, 1*s*. Drawing. See Rolls Chapel Reports, 6th Report, p. 183.]

A.D. 1791, July 19.—N° 1819.

FERRYMAN, Robert.—This is an invention of a kind of sextuble locking apparatus applicable to the folding and other doors of banks, prisons, and places where the wear is constant, the capacity required for resisting being sufficient for all contingencies. The apparatus described is opened by means of six keys, which it is proposed to place in the possession of six different persons, one to each, say the partners in a bank or persons in authority, and as one key only opens its own lock or section of the apparatus, it is evident that all the owners of the six keys or their deputies must be present before the door or doors can be opened. Each lock is capable of shooting two bolts respectively in opposite directions; these bolts at their inner ends are furnished with toothed racks, with which an intermediate pinion engages; the pinions are severally moved on fixed centres by means of a projecting arm with which each pinion is provided, and these arms engage with and obtain motion from other internal movable parts of the locks severally, each differing in its constructional arangements, and shooting the bolts some out of the top and bottom of the doors, and others from the sides.

[Printed, 8*d*. Drawing.]

A.D. 1791, November 3.—N° 1835.

ANTES, John.—This invention relates to "locks, latches, and "bolts, that strike and catch by means of a spring." Two locks are described differing in form but constructed to act in the same manner mechanically, and adapted chiefly to folding doors, each being fitted with a key bolt, a latch or catch and a small bolt. The invention is applicable to most other kinds of locks, and consists, amongst other things, in the use of two swivels whereby all the friction of the follower is removed; these swivels may be either fastened to the spring-bolt and slide through the follower, or be fastened to the latter and slide through the spring-bolt, and they may be applied to all kinds of spring striking bolts. The latch is moved out by a coiled spring of steel which finds resistance against the lock case; the use of this spring is to avoid friction, and for the same purpose, a long swivel is hung on a stud fixed at the top of the box, and has its free lower end pin-jointed to the bolt. Also two small rollers are fitted in the extreme end of the latch, respectively to prevent friction, the one acting against the brass plate into which the latch falls, and the other against the side of the hole in the lock case.

[Printed, 6*d*. Drawing. See Rolls Chapel Reports, 6th Report, p. 145.]

A.D. 1795, August 28.—N° 2062.

SPEARS, James.—This invention relates to the construction of locks adapted for doors and similar purposes. These locks are provided with triple-headed bolts, which shoot through the end plate. The parts of the lock consist of a strengthening bar to the bolt, into which it falls when moved by the key. The drill pin is made tubular to receive a pin or spear, which is contained in the shank of the key, a " balance ketch " is centered in a plate which covers the aperture through which the ketch rises, and there is a spring which acts on the strengthening bar. In order to close or open the lock it is necessary to " press gently on the pumps in the " key, which comes in contact with the pin or spear . . . which " passes through the drill pin . . . and acting upon the balance " ketch " another smaller " ketch " is raised, " which being taken " by the key is moved upon a float by turning until it comes to " two sinks in the plate at each end of the float, into which the " ketch drops when the bolt is shot." In this position the key looses the ketch, and it becomes necessary to renew the pumping operation before, when required, it can unbolt the lock. The key is comprised of several parts, and it seems to have a second or " pumping " action which is not clearly defined. The picking of the lock, which cannot be effected without raising the balance ketch, is prevented by a plate.

The pumping operation, in the event of the key being lost, may be prevented by the insertion of a small wire or pin.

[Printed, 10*d*. Drawing. See Repertory of Arts, vol. 8, p. 91.]

A.D. 1797, November 18.—N° 2203.

LANGTON, Daniel.—This invention relates to " certain locks, " springs and machinery for the security of doors, and for preventing rain or wet from passing under them, and which when " applied to the doors of rooms covered with carpets, floor cloths, " or matting, will cause such doors to pass over the same with the " utmost facility without dragging or anyways injuring or defacing such carpets, floor cloths, or matting, and which will also " prevent the cold air from passing under and over the same, " and by that means keep such rooms warm;" consisting,—

1st. " Of several springs, levers and additions to the common " mortice lock for internal doors; . . . likewise of a strong lever, " and a case or box attached to such lever, with a strong spring

" therein, made of any proper materials and of any convenient " dimensions, to be let into a groove at the bottom of the door to " which such mortice lock with its additions is affixed, and com- " municating therewith by a small rod; . . . also of a moveable " head, made of wood or metal, of any convenient size, to be " placed on the top of the door to which the above-mentioned " apparatus is affixed."

2nd. A spring and other " additions to the mortice lock, com- " monly used for external doors, and of a spring plate and other " apparatus which may be fixed at the bottom of external or " internal doors, working in a case let into a groove in the bottom " of the door, communicating with and worked by such lock and " its additional works by means of a rod passing up a hole bored " vertically up the style of the door, from the bottom apparatus " to such lock."

3rd. A private bolt with tumbler and necessary parts " that may " be added to any mortise lock already affixed to an internal door, " or may be affixed on any such door without being attached to " the lock, and also of a certain spring plate to be affixed in the " bottom of such door to exclude the cold air."

4th. Apparatus applicable to any mortice door lock already fixed, for the purpose of lifting and depressing the false bottom of the door.

5th. A mortice latch adapted to the back of a door having any common lock or latch in front.

6th. A lifting hinge operating when the door is opened by means of a roller and quadrant.

[Printed, 10*d*. Drawing.]

A.D. 1798, May 3.—N° 2232.

BRAMAH, JOSEPH.—This invention relating to locks and keys, has for its object the prevention of opening locks even by their own keys when not in possession of the owner. To this end;—

1st. Keys are made " capable of varied arrangements similar to " the locks, which may be be done by causing the key to consist of " as many separate parts as there are sliders in the locks, so that " the varied projections of the surface which act on the sliders, to " bring them to their proper station, may be arranged by the " owner, comformable to the disposition of the sliders in his lock, " and which lock he may arrange differently at pleasure."

2nd. "By so adapting the locks that a system may be introduced which will admit of an universal graduated standard instrument, very simple in its nature, and capable of being applied with effect by none but its owner in the act of opening the lock, which act shall at all times depend on a secret that may exist only in the mind of every respective owner except he choose to communicate it to others. . . . For this purpose, let us suppose a cylinder or frame in which the sliders (also called guards) are fixed, to be prepared in the usual way, and the number of sliders to amount to twenty-four. In the first place, I propose to open the slit or groove in which each slider moves out to the front of the lock, at a greater distance in some cases from the center of the frame than the usual diameter of the keyhole, so as to render the exterior end or point of each slider on which the key acts separately accessible, so that by any instrument which will pass into the said slit, and fall in contact with the end of the slider, each of them may be forced from its resting station to any given distance within the latitude of variation allowed for the whole twenty-four sliders, then the spring, which in the old lock replaces the sliders after the operation of the key, being removed, each slider will always remain in the station which the instrument employed to give it motion leaves it, whether that motion be excessive or deficient, for the purpose of opening or permitting the motion of the bolt."

The "instrument, which I call a key, or rather an index, may be of steel, iron, or any other metal, or even wood, and must be made of a size capable of entering the slits or grooves in the frame, so as to fall in contact with the sliders, and capable of pushing them back one at a time."

[Printed, *4d.* No Drawings.]

A.D. 1798, December 8.—N° 2277.

TURNER, THOMAS.—This invention relates to the construction of locks.

1st. The drill hole in the key has three different sizes or diameters, and round the shank over the two innermost diameters are two grooves sunk deeper than the largest diameter of the drill hole; the end of the barrel of the key is slotted down to the grooves to enable the key to pass the extremity of the bridge wards. The key ward-bit consists of pieces projecting laterally in different lengths.

The parts comprising the lock, consist of: 2nd, the drill pin, which has three different diameters to correspond with the key; 3rd, the bolt which has its heads let into the end of the lock plate, an opening in its tail part for the drill pin, notches, and stumps to guide it, and also a stump pin in the tail to engage with a slotted hole in the moving cup or rim wheel: 4th, a moving peg which is let into the lock plate like a bolt; 5th, a moving cup or rimmed wheel which has a round hole in the center for the drill pin to pass through and to act as a guide, a slotted hole at the bottom to admit the peg on the bolt, a groove round the inside of the bottom to receive the rim, a slit or passage through each side to permit the tumblers or spring bolts to pass, and a peg in the bottom for the key-bit to bear upon; 6th, a fixed rim which is fitted into the moving cup, is grooved inside to admit and keep the springs of the tumblers separate, and has its sides slotted for the passage of the tumblers and spring bolts; 7th, tumblers or spring bolts of which four or more may be employed, the heads and tails being of different lengths to suit the configuration of the key; 8th, the bridge wards, which are fixed in the rim between the tumblers or spring bolts.

[Printed, 6*d*. Drawing.]

A.D. 1799, April 11.—N° 2306.

DAVIS, George.—This invention relates to locks made for the purpose of security with double chambers, the key having to pass through two apertures at different angles on one or both sides.

" These key-holes are case-hardened barriers, which are varied " in the lower entrance from what appears on the top cap, on " purpose to mislead and prevent any improper means being " used by the application of a false key. In the lower chamber " is a cylinder let into the plate of the lock, no way dependant " on the drill pin, on which are affixed stumps or pins in various " forms and directions, which are level with the under part of " the lower cap. These go through the end of the key (which " is perforated to fit with great nicety) and always stand opposite " the key hole, to prevent entrance to anything but what exactly " corresponds with the varied position of these pins or stumps. " Also on the cylinder are two locking pieces with springs, the " ends of which bolt through the plate, and must both be liberated before the lock can be opened. There is no particular situation

“ for these locking pieces on the cylinder, as they may be varied “ at pleasure, and made to act against any part of the key which “ first enters the lower chamber.” Instead of springs and tumblers “ there is a spring with a pin that goes through the top of the “ bolt, and which spring cannot be discharged without the rotative “ motion of the cylinder. It must here be particularly remarked, “ that it is not solely the motion of the cylinder that will effect “ the purpose, as that may be moved round, and the bolt remains “ stationary. This will be found an invincible obstacle to any “ illicit means that may be used to open the lock without the “ key. The bolt and spring are so completely boxed up, that “ there is no communication to them whatever, but through “ both key holes into the lower chamber, although their position “ is close to the top cap.”

[Printed, 4*d*. No Drawings.]

A.D. 1801, June 23.—N° 2521.

HOLEMBERG, Samuel.—This invention relates to the construction of locks and fastenings for general use. These locks act upon the rotative principle, the parts generally moving a portion of a revolution round the center on which the key turns. The bolt is segmentally curved, moving concentrically with the center on which the key turns, its end when shot passing through the catch plate and again entering the lock, the catch plate having two holes for the passage of the bolt, which holds the plate by the intermediate part. There is an inside spring and tumbler designed for the better security of the principal bolt, a spring flat bolt to double fasten the lock, a stop for the recurrence of the principal bolt, and a quadra-circular guide.

A fastener adapted to window sashes, shutters, doors, and such like purposes, constructed to act on the same principle as the lock, is exhibited in the drawing.

[Printed, 6*d*. Drawing. See Repertory of Arts, vol. 15, p. 366.]

AD 1801, October 8.—N° 2542. (* *)

BULLOCK, William.—“ An improved fastening to be applied “ to sashes or dining tables.” The fastening is composed of two plates, the one carrying a spring and a lever which works backwards and forwards on a screw or pivot, the other carrying a circular hook; the former, about three-quarters of an inch wide, is fixed on the upper or back sash; the latter on the lower or front sash. The back plate has behind an edge about half an inch high, to which the spring is secured. The lever "is made "about three-eighths of an inch thick at the head, where the "screw or pivot passes through," and about an inch and a half long; in the head where it works on the pivot is placed "a small "wheel or roller in the angle;" this acts upon the spring, takes off the friction, "and gives it a lively motion." At the other end of the lever which passes under the circular hook on the other plate is "a rising part which passes round such circular "hook and draws the two bodies tight together." On the rising part is a knob or handle. Modifications:—1. "Intended for "tables as well as sashes;" the edge of the back plate is lower the spring is fixed to the bottom of the plate, and the end of the lever is formed with a thumb piece. 2. "For high windows "that cannot be got at easily," the plates are reversed in position; in the end of the lever is a hole to fasten a line "by which "the fastener will be easily opened," and on the lever is a quadrant pierced with a hole for another line, by pulling which "the "fastener is fixed." 3. "For sashes or dining tables;" there is no edge to the back plate, and the spring, "a strong open one," is fixed to the plate by a single screw. "When used for tables, "the screw or pivot is on the under side of the lever, and the "female screw in a box or socket on the under side" of the plate. 4. "For tables or other flat bodies;" instead of a roller "there is a link or chain connected with the head of the lever "and the end of the spring, which takes off the friction." 5. Differs from the fastener first described in not having an edge to the back plate, and in having instead of a roller "a small "piece of steel or iron fixed in the angle of the lever to act "upon the spring." The spring, which is straight, is fixed into the plate.

[Printed, 6*d*. Drawing.]

A.D. 1805, May 18.—N° 2851.

STANSBURY, Abraham Ogier.—This invention relates to the manufacture of locks and keys for general purposes. The principle of construction is adapted to all kinds of locks and padlocks, the main feature consisting in the use of two plates placed face to face in contact, one, the back plate, being a fixture in the lock case, and the other free to revolve on a central drill pin, which is fixed to and projects from the centre of the back plate, and passing out through the keyhole forms the center whereon the key turns. The two plates have each a number of small holes perforated through them in an irregular radial line, extending from the center to within the extremity of the radius described by the ward-piece of the key in the act of turning, and into these holes pins are severally fitted so as to have liberty to slide through both of the plates. The pins always remain in the back plate, and each pin is capable of being projected forward into the movable plate by means of a small wire spring or otherwise, so that when the two plates are in the position for the holes to coincide, the springs force the pins forward into and nearly through the holes in the movable plate, and the lock is then fast, the bolt being always shot by the movement of the circular plate, when the latter is brought into that position.

Projecting from the front end of the ward piece of the key is a number of fine studs, respectively placed in position exactly to correspond with the holes in the plates, and capable of entering therein, and nothing is seen through the keyhole but the plain surface of the movable plate. When desired to unbolt the lock, the key is inserted and turned until the ends of the key studs, which slide against the surface of the plate, find the holes. By then pushing the key forward, the studs force back the sliding pins into the fixed plate, and the movable plate is then free to be turned back by the key. In some cases two key-pieces respectively projecting from the opposite sides of the end of the key shank, each furnished with studs, are employed in some kinds of locks, the plates whereof require to be perforated accordingly. Various kinds of locks and modifications of the means of connection between their bolts and movable plates, are shown and described.

The principle of the invention is adapted to window fastenings, and the handles of door latches and catches are made to operate by a lateral movement, corresponding with the direction the door is required to move, when being either opened or closed.

[Printed, 10*d*. Drawing. See Repertory of Arts, vol. 8 (*second series*), p. 253; Engineers' and Mechanics' Encyclopædia, vol. 2, p. 106.]

A.D. 1808, December 29.—N° 3188.

TOMPSON, William.—This invention relates to the construction of locks with springs and tumblers; these locks have a combined movement first acting vertically and then horizontally, one part of the lock being at liberty, whilst the other is in motion, and the bolt returning into the body of the lock when unlocked.

The nose of the key may be made to consist of two, three, or or more lengths, each corresponding exactly with the bolt and tumblers.

The principal parts of the lock consist of the bolt, which has two or more angular heads; the steady pin, which is grooved to receive the sliding grooves of the bolt; the tumblers and springs attached to the lock plate in the usual way, stumps on the tumblers acting with stumps on or with grooves made in the bolt; the cap with the keyhole may be attached by screws or rivets.

The action of the lock is described as follows :—" The key is " put into the lock and turned to the right hand about one-" eighth part of a circle, when it moves the perpendicular spring " and tumbler by the lower part of the key bit, which moves the " stump on the same tumbler from a stump fixed under, or a " groove cut in the bolt, which, being removed, gives liberty for " the bolt to proceed to its first movement, when the said " tumbler returns to its station and lies on the opposite side of " the stump, or in a notch of the groove, and fastens the bolt " at the height of its perpendicular movement, being guided up " by the two cheeks. The key having now performed about a " third part of a circle, by continuing to turn the same it moves " the horizontal tumbler or tumblers to certain limit or limits by " a step or steps cut in the key nose, which gives liberty to the " bolt to take an horizontal movement, which is carried along by " the key bit till the stump or stumps on the tumbler or tumblers " fall behind a stump or stumps put at the back of the bolt, or " into a notch or notches cut through the bolt, by a spring or " springs put at the back of the tumbler or tumblers, and secures " and fastens the bolt of the lock in the locked position. By " turning the key the contrary way the lock is unlocked, and " the heads of the bolt and the steady pin or pins are brought " down level with the selvage. Both the lock and key may be " made with any kind of metal, such as brass, iron, copper, or " any other like metal, either cast or wrought."

[Printed, 6*d*. Drawing. See Rolls Chapel Reports, 7th Report, p. 205.]

A.D. 1812, March 14.—N° 3548.

LOACH, John.—The object of this invention, which relates to the manufacture of castors, and knobs and furniture for locks, consists in making the heavy parts of such articles of cast or wrought iron covered or coated with finer metal, instead of as heretofore of solid brass. The metals employed as casing or coating may be copper, brass, zinc, tin, or any other suited to the purpose, alone or compounded, and either applied in the sheet by means of dies or otherwise, or in a molten state by the dipping process.

The mode of manufacture in respect to castors is fully described.

With regard to lock furniture, the cup and neck of the knob and the rose are made of cast or wrought iron covered with any of the above-mentioned or other metals or alloys, such casing or covering being so prepared or shaped in moulds or dies as exactly to fit on to the cups and roses, the articles being then placed in the chuck of a lathe, where the edges are turned over and soldered. The iron necks are heated and laid in moulds, and the metallic covering is either cast upon them, or they may be covered by casings made in halves and soldered together afterwards. The articles are subsequently finished in the usual way.

[Printed, 4*d.* No Drawings. See Rolls Chapel Reports, 8th Report, p. 91.]

A.D. 1813, May 15.—N° 3695.

BULLOCK, William, and BOAZ, James.—This invention relates to locks, keys, spring bolts, and contrivances adapted to doors and window shutters for security or otherwise.

1st. A supporter for hanging an alarm bell to window shutters, folding doors, and such like purposes. This supporter is provided with a prop, which is to be so adjusted when the shutters or doors are closed, that in the event of their being opened by accident or violence, the prop becomes disengaged, and the bell is caused to ring violently.

2nd. Another contrivance for supporting alarm bells, consisting of a lever or bar made free to move on a fixed stud by means of a volute or spiral spring. Tension is put upon the spring by bringing the longest end of the lever round to a catch, the spring of the bell being attached to the shortest end. If the shutters or door be shook or opened, the catch becomes disengaged, and the lever flying back sets the bell ringing violently.

3rd. A pneumatic apparatus for preventing the sudden closing of a door. Air is received into a cylinder or collapsible receptacle, and the door cannot be completely shut until the air is expelled or squeezed out.

4th. Relates to a mode of working a spring bolt.

5th. Consists of a lock wherein a suitably fashioned key is made to act upon tumblers, levers, or revolving parts, mounted upon studs projecting from the lock case or plate, or otherwise. The tumblers, etc. carry stump studs or projections, and there is an intermediate wheel or rack which comes into operation when the parts are moved by the key.

[Printed, 10*d*. Drawing. See Rolls Chapel Reports, 8th Report, p. 95.]

A.D. 1814, December 20.—N° 3865.

SMITH, James.—This is an invention of a sash fastener, designed to be self acting.

1st. The shank of the bolt passes horizontally through the top rail from front to back of the bottom sash, and is jointed to one end of a spring lever, moving on a fixed fulcrum, in a slotted opening made through a plate, which is fastened to the front of the sash. The back plate which receives the end of the bolt is fixed to the bottom rail of the top sash. When the sashes are nearly closed an incline on the back plate comes into contact with a corresponding incline on the end of the bolt, whereby the latter is forced back, and the moment the inclines have passed each other, the end of the bolt is shot into an opening in the back plate by the action of the spring upon the free end of the lever, which when it is desired to withdraw the bolt and open the window is pressed upon by the thumb.

2nd. A modification furnishes the shank of the bolt with a spiral spring and places a knob on the front end, thereby rendering the lever unnecessary.

3rd. Another kind of sash fastening acts by means of an eccentric incline, against which the underside of a lever moves, whereby the sashes are drawn together and otherwise are prevented from moving.

[Printed, 10*d*. Drawing. See Rolls Chapel Reports, 8th Report, p. 109.]

A.D. 1815, March 7.—N° 3891.

MITCHELL, William, and LAWTON, John.—The object of this invention, which relates to a detecting lock and key, consists of:—

1st. In making the wards of the lock which the web of the " key has to pass, move or turn upon studs, pillars, or axes, by " which means they are capable of intangling any false key or " instrument that may be applied to attempt the opening of our " locks."

2nd. " A curtain or guard made of steel, iron, or any suitable " material, which always covers the key hole of our improved lock " when it is single locked, by which contrivance our locks will " retain any instrument or false key capable of lifting the tum- " blers of our locks, and consequently detect the means employed " in attempting to open our locks."

3rd. " A method of double locking . . . . desk and box locks, " by merely pressing down the lid of either the desk or box to " which they are fixed;" this is effected " by making the hasps of " our locks press in their passage to the closed position upon a " short lever, which, acting on the short end of another lever " attached to the locking bolt, brings it forward to the double- " locked position."

4th. In order to permit the " tumblers to slide out of the " notches into which they drop to secure our curtain and locking " bolt, we make one side of each of our notches to form an angle " of about forty-five degrees with the upper line of the locking " bolt, the notches thus made appearing nearly like the notch " formed between the teeth of a hand saw, one side only of each " notch being perpendicular to the upper line of the locking " bolt."

5th. " A new kind of portable lock, which can be applied to " the door of a room, closet, etc., more readily than a common " padlock, and possessing all the security that our improved " wards and curtain can give, being suited for all temporary or " casual purposes; and this desirable object we effect by screwing " a hasp plate of iron upon which three or more dovetails are " firmly rivetted to the door, etc., or to the door and frame; and " to prevent the screws from being withdrawn the under plate of " our portable guard locks has three slits or grooves, which, " sliding under the dovetails in the hasp plate, permits the lock

" to come close up to the hasp, where it may be locked and " remain a complete security."

[Printed, 1*s*. Drawings. See Mechanics' Magazine, vol. 18, p. 417; also vol. 19, p. 161; Rolls Chapel Reports, 8th Report, p. 106.]

A.D. 1816, May 14.—N° 4027.

RUXTON, Thomas.—This invention relates to locks adapted generally as fastenings for doors, drawers, boxes, and similar purposes. These locks are constructed on the tumbler principle, and fitted with detecting apparatus.

The lock described is suited to a drawer, the bolt shooting upwards when locked. It contains three flat tumbler levers, which are free to move on one fixed pivot; the top of each tumbler has a straight slot open to the end, and by the turning of the key these slots are all brought into coincidence to receive a blade or feather, which is attached to the bolt, fits exactly into the combined slots, and slides into them when the bolt is withdrawn. The back edges of the tumblers are severally pressed upon by springs, and when the bolt is shot, and the key in a position to be withdrawn, they are thereby forced forward, so as to bring their plain ends beneath the end of the blade.

The lock is fitted with a detector bar, which falls upon any attempt being made upon the lock by a picklock or instrument other than the right key, each of the tumblers having a curved projecting tail piece to act in combination with a prop for operating the detector apparatus.

A padlock constructed on the same principle is shown, and a variety of details relating to the internal constructional arrangements, including several keys with ward-pieces variously shaped, are described and illustrated.

The lock bolt is sometimes made of steel, into which are inserted pieces of flint coated with lead, for the purpose of resisting files or acids, and a variety of other devices are resorted to for the purposes of detection.

[Printed, 1*s*. Drawings. See Repertory of Arts, vol. 29 (*second series*), p. 129.]

A.D. 1816, May 27.—N° 4036.

KEMP, Robert, junior.—The object of this invention is an improvement in the manufacture of locks and keys. It " consists " in applying to the interior part of the lock certain sliders or

“ tumblers, in such manner that when the bolt of the lock is
“ shut or locked, certain parts of the said sliders shall be in con-
“ tact with and intercept some projecting part of the bolt, and
“ the said sliders being incapable of motion, except in a direction
“ at right angles to the direction of the motion of the bolt, they
“ will prevent the bolt being drawn back so as to unbolt the
“ lock. . . . . . The motions of the said sliders are all
“ independent of each other, and the said notches in the pro-
“ jecting part of the bolt are made exactly of the size to cor-
“ respond with the parts of the sliders which are to pass through
“ them, therefore each one of the sliders must be moved pre-
“ cisely to its required position, and neither more nor less, or it
“ will not correspond with the notch belonging to it, and cannot
“ suffer the bolt to pass. . . . . . The particular manner of
“ communicating the requisite movement to the said sliders
“ . . . . is by perforating the centre pin upon which the
“ key turns round when it is inserted into the lock in order to
“ lock or unlock the same, so that the said centre pin is a hollow
“ tube; and I apply within the perforation or hollow of the tube
“ pins which operate upon each one of the aforesaid sliders, so
“ that by pushing back the said pins in the tube or hollow of
“ the centre pin it will give motion to the sliders, and as two,
“ three, or more independent sliders are used in the lock, as
“ many different pins must be inserted in the hollow or centre
“ pin of the lock to correspond with them.”

“The making . . . . of keys consists in applying within
“ the pipe of the key (or that hollow tube which is to receive the
“ centre pin of the lock when the key is introduced into the lock)
“ a pin which shall enter into the hollow or tube of the centre
“ pin, and press upon the ends of the pins . . . . which
“ actuate the sliders that detain the bolt, and this pin within the
“ pipe of the key being made of determinate length, will depress
“ or push back the pins and sliders to the required positions.”

[Printed, 8*d*. Drawing. See Repertory of Arts, vol. 29 (*second series*), p. 327; Engineers' and Mechanics' Encyclopædia, vol. 2, p. 106; Rolls Chapel Reports, 8th Report, p. 112.]

A.D. 1817, February 1.—N° 4096.

HIGGINSON, George Montague.—The object of this invention, which relates to the construction of locks, is the adaptation of means for preventing the introduction of picklocks. To this end, a cylindrical box is attached to or upon the cap plate, concentric with the keyhole center, but with the entrance for the key-ward piece diametrically opposite the key-hole in the cap plate. Within the box a disc or roller is concentrically placed, and slightly tightened by a friction spring; this roller has a keyhole, and when the key is introduced it has to be turned half a revolution before the ward piece gains admission to the lock, and turned back to its normal position before it can be withdrawn, whereby the direct entrance into the lock (excepting at the center) is barred by the roller plate.

A modification of the above is described, whereby the center hole is also barred when the key is withdrawn.

[Printed, *6d.* Drawing. See Repertory of Arts, vol. 31 (*second series*), p. 137: Rolls Chapel Reports, 8th Report, p. 116.]

A.D. 1817, February 8.—N° 4101.

CLARK, William.—The object of this invention is the construction of a safeguard adaptable to locks generally, consisting :—

1st. "Of a screen or scutcheon, with several moveable indexes " or dial plates covering the works of a lock of any or the com- " mon construction, and in the most eligible part of this screen " or scutcheon a plug capable of being drawn out or unscrewed for " the purpose of discovering or obtaining access to the keyhole."

2nd. "Behind the screen or scutcheon, and connected with the " moveable indexes or dial plates before mentioned, I place seg- " ments of circles, which fit into a corresponding groove or " grooves in the plug, and act as bolts, preventing it from being " unscrewed or drawn out."

"The contrivance and action of the safeguard is this :—Having " secretly determined any letters or association of letters to corre- " spond with any number or mark upon the plates in front, " adjust and fix the parts of the segments to correspond with " and clear the cylindric plug (these segments being moveable " upon their arbours and to be fixed by a nut and screw). This " adjustment being effected, move the indexes away from their " secret adjustments, and with each index its accompanying " segment behind will turn, and be thus passed into the groove " of the plug, so that the plug becomes confined and cannot be " drawn out until the indexes are again set to their secretly " determined marks, which will bring the concave part of each " segment to correspond with or clear the plug, when the plug

“ may then be drawn out and access obtained to the key-hole of
“ the lock.”

[Printed, 6*d*. Drawing. See Rolls Chapel Reports, 8th Report, p. 116.]

A.D. 1818, February 3.—N° 4219.

CHUBB, Jeremiah.—This invention relates to detecting mechanism adapted to locks constructed with tumblers or sliders.
“ The detector is a detent or lever moving upon a fixed center
“ pin, and formed with a hook or catch adapted to interlock with
“ a notch or stud in the bolt of the lock, so as effectually to stop
“ and resist the motion of such bolt whenever the detector is
“ moved on its center pin so as to come into contact with the
“ bolt; but if the detector is moved on its center pin so as to
“ be clear of the bolt, it will then make no opposition to its
“ motion. The detector spring is a spring applied to the detector
“ in such a manner as to urge its hook or catch towards
“ the bolt when the detector is moved, or as to bring the said
“ hook or catch nearer to the bolt than a certain position,
“ which may be called the point of detection. The said detector
“ spring will urge the detector hook away from the bolt whenever
“ the same is at a greater distance from the bolt than the
“ said point of detection. The detector is so placed as to be operated
“ upon by the tumblers of the lock, when the whole or any
“ of them are raised; and if any one of the tumblers is raised to
“ high (that is to say) is moved farther from the center of motion
“ of the key than the required position, in which the notch in
“ such tumbler comes opposite to the stud of the bolt, as before
“ described, then such tumbler, which has been too much raised,
“ will move the detector beyond or within the point of detection,
“ in which case the detector spring will throw the hook of the
“ detector into contact with the bolt, and the detector will
“ effectually stop any motion of the bolt, even though the tumbler
“ which occasioned the detection should be restored to its proper
“ position, for, though any one of the tumblers which may be
“ raised too high will operate against the detector to throw its
“ hook into the bolt, yet there is no connection between such
“ tumbler and the detector which can occasion the detector to
“ leave its then position, as the true key of the lock will raise
“ each tumbler to its required position, and no farther; it will
“ never throw the detector beyond or within the point of detection,
“ consequently, the detector spring will always keep the

" detector hook disengaged from the bolt, but if a false key or " picklock be employed to raise the tumblers there will be every " probability that some one will be raised too high, and will " move the detector beyond the point of detection, so that the " detector spring will then throw the hook into contact with " the bolt. In this state the lock is what I call detected, and " the possessor of the true key has evidence that an attempt has " been made to violate the lock, because the said true key will " not now open it, for neither the true key or tumblers have any " means of communication with the detector after it has passed " within the point of detection."

Describes the instrument or "regulating key," designed only to liberate the detector and restore the proper adjustment of the lock, so that the true key will open it.

Instead of one single detector being adapted to the bolt of a lock, a separate detector may be applied to each tumbler.

[Printed, 8*d*. Drawing. See Repertory of Arts, vol. 34 (*second series*), p. 321; Mechanics' Magazine, vol. 1, p. 193; Rolls Chapel Reports, 8th Report, p. 126.]

A.D. 1818, June 30.—N° 4275.

ROUX, Albert.—(*A communication.*)—This invention relates to padlocks and to locks generally.

1st. Describes a padlock, the circular box of which is furnished internally with concentric circular grooves and a set of movable " concentric circles " or rings lie in the grooves; a stopper occupies the center, and the bow piece is loose. The circles and grooves are notched to admit the longest end of the bow, and the latter is notched to permit the concentric circles to move round. The face of the lock exhibits (free to revolve in their places) a concentric set of directing circles or rings, which are attached one to each concentric circle, and have at regular intervals numbers composed of one or two units stamped or engraved upon them; in order to insert the longest arm of the bow, it is first necessary that certain numbers on the several directing circles (which are free to move round) be brought into a radial line, whereby all the notches are brought into coincidence, and a free passage is thus made for the long straight arm of the bow, through the circumferential periphery of the box in a radial direction towards the center of the lock, and there is a shallow hole in the case to receive the short arm of the bow. After the bow is inserted, the directing circles severally are moved round more or less by means of small studs, so as completely to derange the radial line of notches, the inner concentric circles having liberty respectively to slide in the notches which are made in the arm of the bow, and the lock is thus fastened, and cannot be opened, and the bow set free, until the radial arrangement of the notches in the circular grooves and the concentric circles is restored.

Describes the locks "with sliders and combinations," which act upon the same principle.

[Printed, 1*s*. Drawings.]

A.D. 1819, October 18.—N° 4402.

STRUTT, Antony Radford.—This invention, relating to the construction of locks and latches, consists:—

1st. In the use of "a number of levers which are acted upon by " the key near the center, and have their notches (which allow " the bolt to be shot when they all correspond) at the circum" ference, and these plates or levers may either be made to return " to their place by a spring, or fall by their own weight, when " that is sufficient; by this a small movement of the key produces " a large one of the circumference. Great space is obtained for " the false notches, and room for several working notches to be " brought into action by different keys, when requisite, which " keys are not at all like one another. This allows of key, " sub-master key, and grand-master key."

2nd. "In securing the lock upon the door, or in fastening " the lid to the lock so that it cannot either be taken off the " door, or taken in pieces to inspect the interior, without the " assistance of the master key. A decided difference between " this lock and those in use is, that in the lock now in use the " key passes the wards or puts them into the proper position, " and also moves the bolt; in this lock the key has only to put " the levers into the right position, and the bolt is moved by the " hand."

[Printed, 8*d*. Drawing. See Repertory of Arts, vol. 37 (*second series*), p. 321; London Journal (*Newton's*), vol. 1, p. 88; Rolls Chapel Reports, 8th Report, p. 134.]

A.D. 1820, April 11.—N° 4443.

JENNINGS, Henry Constantine.—This is an invention of a lock adapted for doors and general use. It contains, covered by a circulate plate, a ward box through which passes the main bolt. Across the face of this bolt is fitted to slide a secondary bolt, which detains the main bolt until it has been first moved into a clearance position by the key during the first portion of its movement; the further movement of the key carries round a plate attached to a slotted pipe through which the key is entered, and during this part of the movement the main bolt is operated by a projecting piece on the periphery of the plate, the configuration of which is adapted to the operation of moving the bolt by contact with a projecting stud fixed at a proper point in the face of the latter.

Describes modifications in the lock whereby the key may be made to enter and act from either side. The action of the various parts is carefully shown at the points where the changes are made to take place in their position relatively by the turning of the key, and all the details are described and illustrated.

[Printed, 1*s*. Drawing. See London Journal (*Newton's*), vol. 1, p. 410; Rolls Chapel Report, 7th Report, p. 122.]

A.D. 1820, December 14.—N° 4519.

MALLET, William.—This is an invention relating to the construction of locks applicable to doors and other purposes. The principal parts of these locks move with the bolt, being carried on a horizontal girder flange or shelf named by the inventor a "barricadoed girder," which is attached to the bottom edge of the bolt; this girder has cut through it side by side, a number of mortised openings, through which severally slide up and down, one through each opening, the downward projecting parts of a corresponding number of flat "sliding guards," which are ranged side by side upon the girder flange; the lower ends of those parts of the sliding guards which pass downward through the girder flange are acted upon by the key, and they are made of different lengths to correspond with variations in the radial length of its wards or key-piece. The sliding guards are pressed down by springs and kept in position by a stud, which is fixed projecting from the bolt plate, and passes through a slotted opening in each sliding guard; the latter have each a square notch in the underside; these notches when the bolt is unlocked embrace a square piece fixed across the girder, and when the bolt is locked the ends of the slider guards abut against it. The key enters through a collar which moves with it when turned. The configuration and arrangement of the parts may be modified.

[Printed, 6*d.* Drawing. See Repertory of Arts, vol. 41 (*second series*), p. 82; London Journal (*Newton's*), vol. 2, p. 22.]

A.D. 1822, June 4.—N° 4675.

WOLLASTON, Henry Septimus Hyde.—This "invention "consists in a bolt or fastening so constructed, that when fixed "on a door post a bolt or tongue may be projected from it across "the opening of the door, or drawn back from that position at "pleasure by means of a wire or line connected with a weight "contained therein; and it is so contrived as to remain steady in "either position by means of a counterpoise, similar to that "applied to other night bolts."

Various plans may be adopted in its application; that which is described consists of a bolt which is projected from the bolt case by means of a weight, in the surface of which there is cut an oblique groove to receive a stud, that is fixed projecting from the bolt. The weight is fitted to slide easily up and down in the case, and to it is attached the wire or other means of communication, the amount of obliquity in the groove, in regard to the longitudinal line of the case, is just so much as the bolt is required to shoot out of the case, the bolt being projected when the weight is at rest, and is withdrawn when the weight is raised by the pulling of the wire.

[Printed, 6*d.* Drawing. See Repertory of Arts, vol. 43 (*second series*), p. 134; London Journal (*Newton's*), vol. 5, p. 245; Mechanic's Magazine, vol. 3, p. 311.]

A.D. 1823, July 10.—N° 4812.

FAIRBANKS, Stephen.—(*A communication.*)—This invention introduces into locks and fastenings a helical or spiral spring, in lieu of the ordinary feather or Scotch springs usually employed in locks and latches of ordinary construction, for the purpose of forcing out the bolt or latch. These helical or worm springs may be employed in locks of various kinds, and may be so introduced as to operate either by compression or extension, according to the form or capacity of the locks wherein they are employed.

The manner of employing these springs is described and exhibited with reference to several kinds of locks, including a mortise lock, a rim lock, a padlock, a stock lock, a mortise latch, a shutter latch or bolt, and a closet or dead lock.

[Printed, 1*s.* Drawings. See London Journal (*Newton's*), vol. 6, p. 172; Mechanics' Magazine, vol. 1, p. 151.]

A.D. 1823, November 13.—N° 4862.

WARD, John.—This invention relates to locks and fastenings. Describes and illustrates a house or other door lock adapted to shoot three bolts simultaneously, one at the upper part of the door, another at the lower part, and the third or ordinary bolt. This lock is constructed with moving tumblers, and one of these tumblers is placed remote from the keyhole, and can only be reached by a movable piece or lengthening bit fitted to the key. This bit renders the lock secure, as it comes into position for acting upon the back tumbler when pushed into the keyhole, producing an effect which could not be reached by an ordinary key. The lock is capable of being opened from either the inside or outside of the door, but as the key turns on a central pin, the position of the keyholes is not relatively opposite, the steps of the various tumblers of the lock being properly formed for the same key to act upon them through either of the keyholes. The auxiliar top and bottom bolts may be withdrawn independently of the main bolt, which when desired may remain bolted.

Describes a spring and tumbler bolt.

[Printed, 10*d*. Drawing. See London Journal (*Newton's*), vol. 8, p. 303.]

A.D. 1824, June 15.—N° 4972.

CHUBB, Charles.—This invention relates to locks fitted with detector mechanism. The lock is made with movable tumblers upon the same principle of construction as the detector lock invented by Jeremiah Chubb, to whom were granted letters patent dated Feb. 3, 1818, No. 4219, and according to which invention, any of such locks having been violated or attempted, so that the detector hook came into position to detain the bolt, the lock could not be opened without the assistance of an auxiliary or regulating key. Now the object of the present invention is so to form and apply the regulating bolt that the true key will also regulate the lock after it has been "detected." The regulating bolt is disposed over and adapted to slide backwards and forwards a little in excess of the movement of the main bolt in the act of locking and unlocking, and in order to relieve the hook of the detector from its hold upon the main bolt, the key is turned in the forward or locking direction, whereby the various steps on the key ward-piece will raise the tumblers so as to bring their openings into coincident position for a stud upon the regulating bolt to enter, and by a further additional turn, the detector will be relieved from its hold, after which by turning the key in the right direction for unlocking the bolt is withdrawn. The lock has four tumblers, and the constructional details are carefully described and illustrated.

The same kind of detector mechanism is shown and described as adapted to a padlock, constructed with tumblers and the usual appendages.

[Printed, 8*d.* Drawing. See Repertory of Arts, vol. 1 (*third series*), p. 379; London Journal (*Newton's*), vol. 9, p. 416.]

A.D. 1824, June 15.—N° 4973. (* *)

DAY, **Benjamin Ager.**—" Improvements in the manufacturing " of drawer, door, and lock knobs, and knobs of every description." One part of the invention consists in making knobs "in two " or more parts in wrought or cast iron or any other substance " or material which will answer the purpose," and afterwards casing the separate parts with sheet or thin brass or metal of any other kind; it relates also to casing with brass or other metal knobs "made in one part only" and their roses. The separate parts are stamped or pressed in dies while the iron is hot; the roses are stamped or pressed from sheet iron when cold. The casing is affixed "by turning the edges thereof over the iron;" the cups and roses are fastened together by passing a shank through their middle, and "the ornamental shell of metal" with which the knobs are covered when put together is turned over in the usual way. Another part "is for setting a ring of stampt " or cast brass, or any other description of metal, round the edge " of the drawer, door, and lock knobs which are made of ebony " or any other kind of wood." The socket, "which is introduced " into the ebony or other wood lock knob to receive the spindle of " the lock," is occasionally made "to come through the wood," and is fastened by a screw, nut, rivet, &c., and the shank is made " to come through and fasten in the same way."

[Printed 4*d.* No Drawings. See London Journal, (*Newton's*), vol. 9, p. 249; Register of Arts and Sciences, vol. 2, p. 298.]

A.D. 1825, May 14.—N° 5171.

YOUNG, **John.**—The object of this invention is to improve the construction of locks for doors and other purposes. It is described and exhibited as adapted to a stock lock. A circular cavity covered by the top plate is made in the stock to admit the lower plate. There is a bolt spring or springs, and a forked spring extending to the drill pin for the purpose of raising a notched swivel which having the drill pin for its center of motion, when turned by the key is raised by the forked spring when the notch in the swivel and a hook attached to the lower plate come into coincidence. There is the usual guide for the bolt and pieces for fixing the upper plate. The bolt is racked on both sides, and a lever or tumbler furnished with two square pins is placed over the bolt and has the bolt guide for its center of motion. The bolt spring or springs may act on the back of the lever as well as on the bolt, When locked a pin in the swivel takes into a hole in the bolt and affords additional security against false keys or picklocks.

[Printed, 6*d*. Drawing. See London Journal (*Newton's*), vol. 13, p. 197.]

A.D. 1826, February 18.—N° 5334.

NEWMARSH, Benjamin, and BONNOR, Charles.—This invention relates to apparatus adapted for "suspending and " securing windows, gates, doors, shutters, blinds," etc. The apparatus " consists of plates of iron or other metal, with spring " rollers and bolts, which plates are to be affixed to the styles of " windows, or in similar situations to the edges of a door, gates, " shutter, or blind designed to slide vertically. These rollers are " intended to be pressed by their spring carriages with consider- " able force against the sides or beades of the window frame, for " the purpose of creating so much friction as will overcome the " power of gravity, that is, keep the sash suspended in its grooves " by the lateral pressure, and prevent it from sliding until raised " or lowered by hand. The bolts are adapted to the plates at " top of the lower sash, for the purpose of shooting into the " meeting bar of the upper sash, in order to hold the two " together, and thereby secure the window."

Describes a modification of the suspension apparatus wherein a friction roller with pawl and ratchet are employed. When the window is raised the pawl rides over the teeth of the ratchet, but when pulled down the pawl detains the ratchet, and the periphery of the roller is held in frictional contact with the sash frame.

"The securing apparatus in its simplest form is merely a slid- " ing bolt attached to the top of the lower sash, and intended to " be shot into a hole in the meeting bar of the upper sash, for

" the purpose of bolting the two together, the bolt being made
" to turn round by means of a key and to lock, in order to pre-
" vent either of the sashes being opened."

[Printed, 10*d*. Drawings. See London Journal (*Newton's*), vol. 12, p. 113.]

A.D. 1826, May 23.—N° 5370.

LOACH, John.—This invention relates to self-acting sash fastenings, several of which are shown and described. These fastenings consist of two parts respectively to be fixed by screws, one to the side of the window sash, and the other to the sash frame; the latter half of the fastening is a plate furnished at intervals in its length with holes or in some cases with serrations to receive the end of a bolt, which is projected by a back spring from the other part, the plate of which is attached to the sash frame, and covers the recess into which when the bolt is required to be withdrawn, the spring and bolt are forced back by a key. Several modifications of these fastenings are described and exhibited.

[Printed, 6*d*. Drawing. See Repertory of Arts, vol. 5 (*third series*), p. 173; London Journal (*Newton's*), vol. 14, p. 187.]

A.D. 1828, May 17.—N° 5656.

CHUBB, Charles.—The object of this invention, which relates to box latches and locks adapted for self-fastening doors or gates that swing or move upon hinges, is to render such latches, which are opened on the inside by turning handles, more secure and less capable of being opened from the outside by picklocks or any other than their own proper keys.

The principle of construction consists in so combining two three or more latches (each being free and independent) to act conjointly as one fastening, all being mounted side by side on one centre pin, and having their outer or movable ends fashioned, bent, or adapted to engage or catch within or behind the same hooked part of one fixed hasp. This hasp is provided with a second hooked part, the two parts being disposed opposite in such manner as to require the latches (which are separately capable of holding) to be mutually and simultaneously placed in one precise position before they can be freed from the hasp, in order to set the door or gate at liberty.

To make the box latch capable of acting as a lock, a bolt is added which is to be moved by the key only, to perform which the latter is turned in a contrary direction.

[Printed, 10*d.* Drawing. See Repertory of Arts, vol. 8 (*third series*), p. 321; London Journal (*Newton's*), vol. 4 (*second series*), p. 402; Register of Arts and Sciences, vol. 1 (*new series*), p. 29.]

A.D. 1829, January 14.—N° 5753.

DEAKIN, JAMES, and DEAKIN, THOMAS.—This invention relates to the manufacture of door handles and knobs, keyhole escutcheons, door and window shutter plates, knobs, handles, and a variety of other articles from the horns or hoofs of animals, plain, ornamented, or conjoined with any kind of metal or material. The horn is used in a heated state and compressed in heated dies, the parts to be united being prepared one with hollow places and the other with projections made exactly to correspond, so that the junction is made solid when the two parts are pressed in the dies, the concavity in which has the form of the article to be produced.

"Door knobs and handles which require metal linings to " receive metal shanks, by which the latch sneck or bolt is to be " turned, opened, or shut. After making a door knob or handle " by the method above described, or one part of the same, before " the two or more parts of which they may be composed are " united together, a hole is to be made in or through the shank " of such knob or handle, or the part thereof where required, " large enough to admit of a piece of metal tube or lining, which " metal tube or lining may be round, or of any other shape on " the outside, but in which a square, triangular, or other hole, " having some one or more angular side or sides, or some catch " or catches, in or through the same. The metal tube or lining " is to be put into the hole so made for it in the shank of the " door knob or handle, or that part thereof where required. The " entire part or parts of horn and hoof, with the tube or lining " of metal before described, intended to compose the whole knob " or handle, are then to be put together and placed in the finishing pressing die or dies, and the whole are united firmly " together by pressing the horn or hoof round and upon the " metal tube or lining before described, and the door knob or " handle is thus compleated, ready to receive the shank by

" which locks, latches, snecks, or bolts are to be turned, opened,
" or shut."

[Printed, 4*d*. No Drawings. See Repertory of Arts, vol. 8 (*third series*), p. 540; London Journal (*Newton's*), vol. 6 (*second series*), p. 339.]

A.D. 1829, June 1.—N° 5798.

GOTTLIEB, Andrew.—The object of this invention relating to locks, is the application thereto of detector apparatus, designed to show when the security of locks has been attempted or violated by the introduction into the keyhole of any picklock or improper instrument. To this end a piece of paper or other similar fragile substance attached to a plate by pointed studs, is so disposed inside the lock, that any picking instrument employed to open it surreptitiously must pass through the paper before reaching the works. The plate forms the lid of a frame which is placed inside the lock and contains a tumbler, spring, pivot, and stud to be acted upon by a projection on the shank of the key, for the purpose of removing or shifting the paper screen when the lock is being opened legitimately.

[Printed, 6*d*. Drawing. See Repertory of Arts, vol. 9 (*third series*), pp. 92 and 331; London Journal (*Newton's*), vol. 4 (*second series*), p. 343; Register of Arts and Sciences, vol. 4 (*new series*), p. 165; Engineers' and Mechanics' Encyclopædia, vol. 2, p. 107.]

A.D. 1830, January 18.—N° 5880.

CARPENTER, James, and YOUNG, John.—This invention relates to locks and other fastenings, and to hinges. These locks are constructed with two or more tumblers, the ends of which are mounted in the usual way on a fixed stud or center whereon they are free to move when lifted by the key, in order to bring two slotted openings in the end of each, coincident with a projecting part of the bolt which as soon as it can enter the slots, is free to be moved backwards and unlock.

The joints of hinges are cast and fitted, and then soldered, brazed, or rivetted to the wrought-iron parts which are perforated to receive the fixing screws.

Describes a mortise door lock with a spring latch which is lifted by the key at the time of unlocking. This lock has no means externally for lifting the latch excepting by the key, but on the inside it is furnished for that purpose with a handle or knob.

The first part of the specification, as described with regard to the tumbler lock and the hinge, were subsequently disclaimed by a Disclaimer and Memorandum of Alteration, dated 29 June 1839.

[Printed, 8*d*. Drawing. See Repertory of Arts, vol. 10 (*third series*), p. 147; also vol. 1 (*enlarged series*), pp. 52, 113, 230, and 297; London Journal (*Newton's*), vol. 7 (*second series*), p. 152; and vol. 21 (*conjoined series*), p. 478 for disclaimer; Patent Journal, vol. 4, p. 83; Register of Arts and Sciences, vol. 5 (*new series*), p. 69; Patentee's Manual, p. 33; Engineers' and Mechanics' Encyclopædia, vol. 2, p. 108; Webster's Reports, vol. 1, pp. 261, 268, 530, and 540; Meeson and Welsby's Reports, vol. 9, p. 300; Law Journal, vol. 2 (*new series, Exchequer of Pleas*), p. 213; Billing on Patents, pp. 41, 53, 62, 111, and 182.]

A.D. 1830, January 26.—Nº 5886.

ARNOLD, JOHN.—This is the invention of a spring-bolt or latch adapted for doors. It slides longitudinally in a cylindrical case attached to a foundation plate, whereby it is fastened to the door; the bolt consists of a tube, both ends of which are plugged and made solid, the front end for the purpose of strengthening it, and the back end to receive the continual pressure of a helical spring disposed in the bottom or back end of the case. This spring has a constant tendency to force the bolt outwards, and the latter is drawn back by a knob or handle against the pressure of the spring. The handle may have a single knob or be made to pass through the door and have a knob on each end, a slot in the case which regulates its length of action permitting it to slide.

A variety of details are described and illustrated, including a similar latch-bolt that is moved by a turn of the handle, which is furnished with a short lateral arm that acts upon a stud fixed in the bolt, so as to project through the slot in the cylindrical case.

[Printed, 10*d*. Drawing. See Repertory of Arts, vol. 9 (*third series*) p. 294; London Journal (*Newton's*), vol. 3 (*conjoined series*), p. 197; Register of Arts and Sciences, vol. 4 (*new series*), p. 291.]

A.D. 1831, April 14.—Nº 6105.

RUTHERFORD, WILLIAM, junior.—The object of this invention relating to "a combination or arrangement of apparatus or "mechanism to be used by itself, or applied to locks and other "fastenings for more effectually protecting property," is to secure for a given time, property consigned to safes, desks, drawers, and to box-seats, lockers, and lock-up receptacles fitted in coaches, vehicles, and places, until the destination is reached, the necessary length of time having previously been determined.

The apparatus is fixed to act with any ordinary or other lock; the extremity of the lock bolt is lengthened by a rectangular movable guard piece, which is jointed to the bolt, and when the bolt is shot enters an opening of corresponding form recessed in the periphery of a circular guide plate, which is loosely mounted on the axis of a revolving dial wheel, and when in action is fixed thereto by a thumbscrew. The dial wheel, by means of toothed gearing, is engaged with and made to revolve at a regulated speed by a pinion, that obtains motion from clockwork actuated by springs or pendent weights. When the dial is turned to be set to the time when the lock is to be opened, the guard piece passes between the wheel and guard plate, and the clockwork being set in motion the recess in the guard plate is gradually brought round, and by the expiration of the set time, it arrives exactly opposite the movable guard piece on the bolt end, which may then be withdrawn, the guard piece being free to come out of the recess, and so permit the opening of the door, lid, or cover. Pendent weights are to be employed to actuate the clockwork when the apparatus is adapted to the doors of fixed safes, and other stationary places. The arrangements are capable of considerable modification in accordance with the varying circumstances of different adaptations.

[Printed, 10*d.* Drawings. See Repertory of Arts, vol. 12 (*third series*), pp. 328 and 386; London Journal (*Newton's*), vol. 1 (*conjoined series*), p. 236; Register of Arts and Sciences, vol. 6 (*new series*), p. 261; Engineers' and Mechanics' Encyclopædia, vol. 2, p. 108.]

A.D. 1831, May 23.—N° 6116.

BARNARD, George.—This invention relating to "locks and "other spring fastenings for doors and other places" consists "in:—

1st. "Having the handle which moves the spring-catch fixed to "a separate lever or crank acting upon the arm which projects "from the catch, but distinct from it, by which means the said "arm may always be of the same length however thick the door."

2nd. "Placing the spring which acts upon the catch at the "front part of it, and fastened to the plate which is fixed to the "front edge of the door, by which position of the spring I am "enabled to use a much longer and consequently a much more "pliant spring."

3rd. Casting a small metal plate upon the key in order to obtain its exact configuration, and then brazing or fixing the small plate upon the lock plate to form the keyhole, so that no key excepting that on which the keyhole was cast would fit the hole.

4th. Making the fitting for guiding the bolt to act upon a center.

The thin ward-bit of the key is crinkled in folds parallel with the key shank.

[Printed, 6*d*. Drawings. See Repertory of Arts, vol. 13 (*third series*), p. 65; London Journal (*Newton's*), vol. 1 (*conjoined series*), p. 70; Register of Arts and Sciences, vol. 6 (*new series*), p. 297.]

A.D. 1831, July 27.—N° 6143.

YOUNG, John.—This invention relates to locks and especially to what is termed a fly guard which is adapted to a lever or tumbler lock, to act as a detector or safety apparatus; the fly guard, a fly lever to keep it in position, and a spring to actuate it, are all connected and carried by the bolt, and so arranged that if an attempt be made to open the lock by a pick or other improper instrument, and either of the tumblers be raised above the regulated height, it will lift the fly lever, release the guard, and cause it to take up a position across the ends of the tumbler levers, whence it can only be moved by its own key by a double-locking movement.

The cases or shells of locks are made of cast iron, the cap or cover being cast on, and the back left to be closed up by the wrought-iron plate.

A secure drawback lock or latch, with levers, spring bolt, circular plate, spring bolt, and "double-bitted key." A modification of this drawback lock is also described and illustrated.

Describes a pendulum latch adapted for door and other locks.

[Printed, 6*d*. Drawing. See Repertory of Arts, vol. 13 (*third series*), p. 144; and vol. 1 (*enlarged series*), pp. 52, 113, 230, 297; London Journal (*Newton's*), vol. 10 (*conjoined series*), p. 207; Register of Arts and Sciences, vol. 7 (*new series*), p. 6.]

A.D. 1832, February 16.—N° 6223.

NETTLEFOLD, John Sutton.—This is an invention of fastenings adapted for dining tables, and applicable to window sashes, shutters, and similar purposes. These fastenings are described and shown in a variety of forms, all consisting of three parts, two parts to be placed, one on each leaf of a table or sash of a window in a position to receive the third part, which acts in

some cases as a sliding dovetail clasp, or by clasping two grooved inclines formed by the two first parts when they are brought together, the chief object in the construction of these fastenings
" being to get a smooth and gradually increasing bite in drawing
" up the joints, and a gradually diminishing resistance on un-
" fastening or taking off the bridge piece. The quantity of
" surface required to be rubbed against will depend upon the
" size and weight of the object acted upon, upon the nature of
" the metal or other material of which the fastenings are made,
" and likewise upon the degree of inclination or divergence of
" the wedged surface. . . . . It matters however but little, what
" are the precise forms of the rubbing surfaces either on the fixed
" or the moving parts, provided they produce an uniform easy
" friction; and as respects the inclined or wedged parts it is not
" necessary that they should be alike in a pair. Their inclina-
" tions may be varied, or one of them need not be inclined at all,
" and they may even both be straight, provided the tongues which
" fit against them are inclined."

[Printed, 8*d*. Drawing. See Repertory of Arts, vol. 14 (*third series*), p. 150; London Journal (*Newton's*), vol. 7 (*conjoined series*), p. 225; Register of Arts and Sciences, vol. 7 (*new series*), p. 236.]

A.D. 1832, December 20.—N° 6350.

PARSONS, Thomas, junior.—This invention relates to the construction of door and box locks, and consists of:—

1st. An arrangement in door locks, of lever tumblers combined with and carrying loose tumblers in such manner, that the lever tumblers act to retain the bolt in both its positions, when either locked or unlocked; also an arrangement simply of lever tumblers alone acting in notches on the bolt. In both cases the arrangement and form of the tumblers and springs permit of the tumblers being made of very thin metal, so that several may be employed in a lock without materially increasing its bulk.

2nd. Box locks as constructed have two or three thin bolts, which are shot simultaneously by the same key without tumblers, the bolts requiring no adjustment by the risers on the key wardbit during the operation of locking, but only afterwards to permit of their being withdrawn from the catch or keep.

Several modifications of both parts of the invention are described and illustrated.

[Printed, 10*d*. Drawing. See Repertory of Arts, vol. 1 (*new series*), p. 201; London Journal (*Newton's*), vol. 13 (*conjoined series*), p. 393.]

A.D. 1833, December 3.—N° 6516.

PARSONS, Thomas.—This invention relating to locks and fastenings, consists :—

1st. " In introducing a moveable support or prop between the " tumbler which intercepts the motion of the bolt and the tumbler " upon which the key acts, which moveable support is capable of " adjustment, for the purpose of requiring a longer or shorter " bit to the key, according to the position of the said moveable " support."

2nd. "In a mode of adjusting at pleasure the bit of the key, " to suit the situation of the moveable support;" there is an adjustable piece on the key wards, and an index externally on the lock plate to show the amount of adjustment required.

3rd. An application of lever tumblers to padlocks, and box locks.

[Printed, 8*d.* Drawing. See Repertory of Arts, vol. 2 (*new series*), p. 211; London Journal (*Newton's*), vol. 7 (*conjoined series*), p. 165.]

A.D. 1833, December 20.—N° 6527.

CHUBB, Charles, and HUNTER, Ebenezer.—The object of this invention, which relates to the manufacture of detector locks, is so to form the tumblers employed in their construction, as will admit of the springs whereby the tumblers are urged towards the key, being applied in a suitable direction for acting upon the tumblers respectively, near to the centre on which they move, whereby is gained the advantage of compactness, and the means for easily applying a detector without any material increase in the workmanship or the cost of the lock. The tumblers are represented as small circular plates, each having a hole near its rim through which the one fixed stud that carries the whole series freely passes. Each tumbler has a peculiar formed opening through it to receive the bolt stud: the size and form of these openings vary so that no two tumblers are alike, and in relation to the particular form of each opening, and to the steps in the ward-bit of the key, so is the size of a small curved piece which is cut out of the lower edge of each tumbler, regulated. The tumbler spring which is rivetted to the lock plate, is formed out of a piece of flat steel with teeth cut like a comb, to press, one tooth upon the edge of each tumbler. In the upper edge of each tumbler a notch is formed, whereby should either of the tumblers in the act of picking the lock, be lifted a shade too high, it acts upon a stud in one of them and that one is caught by the spring detector, and held notwithstanding the downward pressure of its spring. The " detector cannot be released or disengaged so as " to undetect or set the lock free by any other means than by " overshooting the main bolt by the key a little further than its " usual extent of throw for ordinary locking. But as all the " tumblers concur in preventing such overshooting by opposing " the motion which the stud of the bolt must have in so over- " shooting, the tumblers require to be all arranged by the key " into a particular position, and then other undetecting notches, " which are cut in the tumblers at a suitable place in each one " for admitting the stud of the bolt during the said overshooting " of the bolt, will come to a conformity with the said stud, and " as soon as the key has turned so far as to lift the tumblers to " that conformity, but not till then. The bit of the key in turning " a little further forwards will act in a second notch in the bolt " and produce the requisite overshooting of the bolt, and thereby " a small projecting part of the bolt will advance so far towards " the spring detector as to come in contact therewith, and bend " the same away from the tumblers until its hooked end is taken " out of the notch of that tumbler which it had previously " detained in its overlifted and detected state; and the instant " that the said tumbler is so released from the spring detector " its own tumbler spring will cause it to drop down from its " overlifted position, after which the key, being turned backwards, " will carry back the bolt from its overshot position, leaving the " lock undetected and prepared for being opened without ob- " struction by its true key."

Several examples of this principle of construction are described and illustrated, comprising a door lock, a box lock, a padlock, and a double locking lock requiring two separate keys, one for each shoot of the bolts; also " a mode of applying a seal of wax " suitably imprinted," to the sliding cover provided for closing the key hole of any of the locks described.

[Printed, 1*s*. 6*d*. Drawings. See London Journal (*Newton's*), vol. 18 (*conjoined series*), p. 26.]

A.D. 1833, December 20.—N° 6532.

PIERSON, Josiah Gilbert.—(*A communication.*)—This invention relating to locks, lock bolts, and latches for doors and such like purposes, consists in employing in the construction of such articles a number of sliding pieces with projecting legs, formed of thin metal plate and arranged or packed to lay close side by side, each having liberty to move independently of the rest; any number of these sliders may be used in the construction of a lock or latch bolt; each has varying in form a central aperture against the edges of which the tappets, severally projecting laterally from the barrel of the key and forming the key ward-bit, come into contact when the key is turned, whereby the projections or legs of the sliding pieces are brought exactly into coincidence, so as to permit of the sliding of the bolt. In some of the examples of locks described and illustrated two keys are employed, one the tapetted key for operating the sliding pieces when locking and unlocking, and the other or secondary key which actuates and removes a sliding shutter that covers the main keyhole, and after the primary key has operated the sliding pieces and released the bolt, the other key is turned further round and engages with a tumbler, the tongue of which moves the bolt back and unlocks the door, the tumbler not being capable of moving the bolt until it is free from the sliders, either of which if not exactly coincident with the rest is capable of stopping the bolt. The staple which is attached to the door frame to receive the bolt is of peculiar construction. Several modifications are described, and a variety of details illustrated.

[Printed, 1*s*. Drawings. See London Journal (*Newton's*), vol. 6 (*conjoined series*), p. 211; Rolls Chapel Reports, 7th Report, p. 149.]

A.D. 1834, September 6.—N° 6674.

LONGFIELD, WILLIAM.—This invention relating to locks and fastenings for doors and places, "consists in the construction " and arrangement of a novel combination of mechanism in which " a lever bolt is adapted to act upon the ordinary sliding or " shooting bolt of a lock, for the purpose of confining the shooting bolt when its end has been projected or shot out as in the " act of locking. By the employment of this lever bolt the sliding or shooting bolt, when projected, cannot be moved back " without first applying a key to withdraw the ends of the lever " bolt from its holding position."

This lock has two keyholes respectively for operating by the key when in the act of unlocking, first the lever bolt, which is forced and held out of the notch in the main bolt by a small cam, and then through the other key hole the key is entered and when turned the main bolt is operated by means of a small toothed sector, that engages with a toothed rack formed on the upper edge of the bolt.

[Printed, 6*d.* Drawing. See London Journal (*Newton's*), vol. 6 (*conjoined series*), p. 1; Rolls Chapel Reports, 7th Report, p. 154.]

A.D. 1834, October 11.—N° 6694.

AUDLEY, The Right Honorable Lord Baron.—This is an invention relating to the construction of locks, and to a lock-protector applicable to locks generally, and consisting in a mode of applying or so adapting to a lock, a tube, the aperture whereof is covered with a piece of bladder or thin substance, that the lock cannot be opened or attempted without destroying or perforating it. The protector is screwed into the back plate of the lock directly opposite the keyhole.

The locks described are suitable for drawers, desks, cabinets, and such like purposes where plates with hasps, staples or similar contrivances are employed. The plate is fitted with three hasps in a row, the center hasp being longer than the others. The turning of the key brings its ward-bit into contact with and lifts two metallic plates, which operate upon plates or levers on two side wing plates that perform the office of bolts, having each two hooked pieces which engage with the hasps when the inner edges of the two wing plates are brought together, the outside hooked pieces of each plate engaging respectively with two side hasps, and the central hasp receiving the other hooked pieces of both of the wing plates; the unlocking is performed as usual by the return motion of the key.

[Printed, 8*d.* Drawing. See Repertory of Arts, vol. 3 (*new series*), p. 354; London Journal (*Newton's*), vol. 16 (*conjoined series*), p. 225.]

A.D. 1835, March 18.—N° 6792.

HILL, RICHARD.—This invention relates to the construction of door and other locks, and lock-bolt staples. In the locks described, which are suited for either outer or inner doors, the constructional arrangements are such that one bolt is made to answer all the purposes of a sliding catch bolt, a key bolt, a thumb or shoot bolt, or as a draw back bolt, instead of employing a number of different bolts to effect these separate purposes. The handle for throwing back the bolt operates in the same manner as in an ordinary catch lock, its shaft passing through the square hole of the follow piece, and when turned, it forces back a hooked lever, which is otherwise kept erect by a spring. Two other levers confined by a bridle piece are mounted on separate studs carried by the bolt. The hooked end of the first lever engages with a stud fixed in one of the other levers, and when the follow is turned the bolt is drawn back. When desired to lock the bolts by means of the key, a tumbler comes into operation and acts in co-operation with the two levers and the lever which is hooked. For the purpose of fixing the bolt either in its locked or half locked position, a bent lever is fixed to the stem of a thumb knob, and when the knob is turned comes into position to engage with one of the notches in the underside of the bolt, which will have upon it the effect of a thumb or safety bolt, preventing its being drawn back either by the key or the handle.

Describes and shows a modification constructed on the same principle, whereby one bolt may be made to answer the purpose of either a catch or draw-back bolt, a key bolt or a thumb bolt.

The door frame staples are fitted with an anti-friction roller, upon which the inclined face of the bolt strikes.

[Printed, 8*d*. Drawing. See London Journal (*Newton's*), vol. 7 (*conjoined series*), p. 78; Rolls Chapel Reports, 7th Report, p. 161.]

A.D. 1835, December 16.—N° 6960.

WARRICK, JOHN.—(*A communication.*)—The object of this invention is the construction of a lock capable of resisting picklocks and improper instruments, and only to be opened by its own key. The bolt of this lock is operated by a revolving drum, disposed in a cylindrical projection on the face of the lock, and having at its extreme end the keyhole. Projecting radially round the barrel end of the key is a number of lateral projections, and into one of these, which is larger than the rest, is fixed a pin which projects forward. By means of this pin when the key is inserted, its proper position is found for acting upon the barrel, and it is turned in order to bring the projections on the key barrel, into contact with a number of ward pins; the key is then pressed forward against a spiral spring until notches in the ward pins are brought to coincide with a ward plate. The inner barrel is then free to move round in a groove of the ward plate, and carry with it the revolving drum, pins in which take into notches appropriately formed in the lock bolt, at the same time that a small draw bolt is withdrawn by the action of the pins upon a lever, whilst the main bolt is being unlocked.

[Printed, *6d.* Drawing.]

A.D. 1836, February 10.—N° 7000.

FENTON, Samuel.—This is an invention relating to the construction of locks and latches, applicable to doors, gates, and other similar purposes; it consists,—

1st. "Of such . . . a compound lever gravitating latch bolt, as " is not actuated or propelled by the bit of the key, or by a spring " or springs, although to such latch or bolt as aforesaid a spring " or springs may be applied, and is drawn back or into the lock " case, not by the ordinary mode of turning a spindle by means of " a knob into which the end of such spindle is inserted and " secured, but by a lever attached to and working in a mortice " made in the under side of the common knobs or handles; each " knob or handle is to be immoveably fixed to the door by means " of screws, and is intended to answer ihe purpose as well of a " fulcrum to the lever aforesaid as of an instrument for drawing " back the door when it shall have been unlooked or unbolted; " and here I would particularly wish it to be observed that the " form of the above handle is not confined to that of an ordinary " knob, but may be accommodated to the suggestions of fancy;"

2nd. "Of the locking or securing part, comprising two bolts " having no connection one with the other, one of which is " actuated on the outside of the door by the key, and on the inside " of the door by a lever working horizontally in a brass plate, by " which it is attached to the door, which lever when drawn from " that end of the lock through which the latch bolt projects, the " key is prevented from acting either way, and when the key has " been used to shoot forward its bolt the said lever is prevented " from being drawn to its destination as above described, so that " when the door is on the inside fastened by means of the bolt, " actuated by the horizontal lever, the power of the key either to " lock or unlock is entirely suspended; and when the door is on " the outside fastened by means of the bolt actuated by the key, " the power of the horizontal lever to propel its bolt is taken " away, and no possibility of unlocking from the inside exists, all " communication between the key bolt and the lever bolt being " cut off by the intervention of an iron plate."

3rd. "Whereas in other locks having tumblers to secure the "bolts thereof from being pushed back, and the said tumblers "are each and all of them raised off the bolts immediately, that "is to say, by (contact of) the bit or web of the key, there is in "the said locking part of my invention a tumbler which is not "raised by contact of the bit of the key, and is inaccessible to "any instrument, minute or powerful, which may be inserted "into the lock through the keyhole."

[Printed, 1*s.* 2*d.* Drawings. See London Journal (*Newton's*), vol. 9 (*conjoined series*), p. 42; Rolls Chapel Reports, 7th Report, p. 170.]

A.D. 1838, June 30.—Nº 7715.

UZIELLI, MATTHEW.—(*A communication.*) — "Improvements in locks or fastenings."

[No Specification enrolled.]

A.D. 1838, November 13.—Nº 7872.

THOMPSON, SALLY.—This invention relates to the construction of locks or fastenings for doors, cabinets, drawers and other receptacles, and fitting to such locks alarum apparatus applicable to the setting in motion bells and other devices before any key can be introduced; it consists,—

1st. In "placing before the keyhole of the lock or fastening a "plate forming a shutter to the keyhole, to be removed by being "slidden away or being turned on an axis before the key can be "introduced into the lock, which shutter shall be in communica-"tion with an alarum produced by the vibration of a bell or "other sonorous body situated either within the lock or con-"tiguous to it or in a room or place to which the motion may be "conveyed."

2nd. "Forming a communication from the bolt of a lock to a "sounding body, so that the motion of the bolt in being with-"drawn shall cause a sound, or a succession of sounds to be "given at such place, within practicable distance, as the proprietor "of the lock shall determine upon.

Two modifications of the apparatus adapted to door locks are shown and described.

It is proposed to adapt these alarum locks to the rooms and places in banks and offices, so as to be in communication with the apartments of the confidential resident.

[Printed, 10*d.* Drawing. See Repertory of Arts, vol. 12 (*new series*), p. 20; London Journal (*Newton's*), vol. 14 (*conjoined series*), p. 290; Mechanics' Magazine, vol. 31, p. 321.]

A.D. 1839, February 21.—N° 7972.

UZIELLI, Matthew.—(*A communication.*)—This invention relates to the construction of that class of locks or fastenings which are opened and secured without the aid of a key. They are made to shoot one or several bolts and lock or unlock by only one particular and secret adjustment relatively of certain of their parts which are movable, either capable of rotation or sliding, and severally marked with letters, figures, or other characters, ciphers or degrees. The invention includes a variety of these locks or instruments severally constructed in divers ways, and consisting of many separate parts in combination, the whole of which are carefully described and illustrated, comprising:—

1st. A lock without a key adapted for a strong chest or closet, including the necessary directions for opening and closing.

2nd. A keyless lock differing from the former in construction, and adapted to secure the door of a prison.

3rd. A keyless door lock with a single knob. These locks are placed in the centre of the door inside.

4th. Another keyless lock of the same class as the last and capable of indicating 456, 976 combinations.

5th. A screw bolt adapted for doors and similar purposes. This bolt is projected or withdrawn by the turning of a button, in either direction respectively two and a half revolutions.

[Printed, 2*s.* 2*d.* Drawings. See Inventors' Advocate, vol. 1, p. 87.]

A.D. 1839, June 12.—N° 8106.

SANDERS, Joseph.—This is an invention relating to the construction of locks fitted with a detector bolt or apparatus, and to keys, consisting,—

1st. "In a door or other lock in which the tumbler or tumblers "(for there may be more than one if required) are attached to and "move to and fro with the main bolt, and the tail end of which "tumbler is adjusted by the proper key to a particular position, "in which position alone it will pass through a certain opening "in what I call a fender, in which that opening is contrived, "and to which said fender is attached a sliding catch or bar, so "contrived that when in its proper position it will just admit the "tail end of the lever and bolt into or through the opening in "the said fender."

2nd. "In a peculiar arrangement of springs and tumblers "applied to and connected with what is technically called the pin

" of the lock, and which tumblers and springs are brought into " the necessary correspondence by merely pushing the pipe of the " key used with this apparatus (and which is of course what is " called a thick-pinned key) on to the said pin."

3rd. " In a peculiar arrangement of spring or other device in " the pipe of the said key, constituting an improved key," adapted to tumbler locks and locks of ordinary construction.

[Printed, 10*d*. Drawing.]

A.D. 1839, July 3.—N° 8140.

COCHRANE, Alexander.—This invention relates to locks or fasteners requiring in some cases no key, and consisting of movable slides, rings, or discs, according to the mode of construction, of which several modifications are shown and described. The movable parts are marked or indexed with figures, letters, or other characters, which are to be particularly adjusted relatively without a key, so as to bring the movable slides, discs, or parts into a certain position in order that a channel or opening in each is brought into general coincidence with the rest, so as mutually to form an open passage for the entrance of the hasp or part or the protrusion of the bolt, which is then to be secured, and which when the mutual disposition of the movable parts is afterwards deranged, is held until the lock or fastening is required to be opened or released, to effect which the original adjustment relatively of the several moving parts, must be made before the hasp or bolt can be set free.

In some of these locks keys are employed to shoot the bolt after the secret adjustment of the movable parts has been made, which is first necessary in order to open a free passage for the key to enter and act.

[Printed, 1*s*. Drawings. See Inventors' Advocate, vol. 2, p. 131.]

A.D. 1839, July 20.—N° 8163.

SCHWIESO, John Charles.—The chief object of this invention, relating to locks adapted for doors and cabinets generally, is their application to pianofortes, organs, desks, boxes, and in all cases where links or staples fixed projecting from plates attached to the lids, have been previously used. It is described by the inventor as follows :—

"My striking plate has no projecting link or staple, but "merely a rectangular aperture, through which the bolt is shot "in a vertical direction (the same as in a common drawer lock); "and to prevent the lid from being raised or opened, as soon as "the bolt is shot there is projected from one or both sides of the "same, and beyond the striking plate, a wing or catch which "effectually holds it down, and which requires the instrumentality of the key to release."

"To unlock it, the underside edges of the wings are pressed "against the bevelled edges of the brass striking plate, which "causes the wings again to retire into the recesses of the bolt, "and enables it to pass through the rectangular aperture without "obstruction."

[Printed, 6*d*. Drawing. See Inventor's Advocate, vol. 2, p. 132.]

A.D. 1839, August 1.—N° 8181.

WILLIAMS, William Morrett.—"An improved lock and "key."

[No Specification enrolled.]

A.D. 1839, December 2.—N° 8293.

GUEST, James.—(*A communication.*)—This invention relates to the construction of locks and other fastenings having their bolts or catches moving on spindles or centres, at which point they are acted upon by their keys or handles. A variety of these locks and fastenings, differing in the form and mode of construction, but having bolts moving round or acting on the rotative principle, are illustrated and described. In some cases the main bolt, which when moving describes a portion of a circle, is secured by a sliding bolt accessible only on one side of the lock, and some are fitted with detector levers and spring catches to act in conjunction with the moving parts, and for the purpose, amongst other things, of preventing the removal from the keyhole of any false key.

[Printed, 1*s*. 4*d*. Drawings. See London Journal (*Newton's*), vol. 17 (*conjoined series*), p. 103; Inventors' Advocate, vol. 2, p. 371.]

AD 1839, December 24.—N° 8330.

CLARKE, Thomas Hardeman.—This invention relates to fastenings for window sashes, tables, &c.

These fastenings severally act by means of a wedge-formed bolt; they are constructed in two parts, one being a kind of box or frame which contains the bolt, and is fixed on one sash or part, and the other is a kind of hasp or catch which is fixed on the other sash or part. The bolt slides through a passage in the catch, and being wedge-formed, and the two parts of the fastening appropriately shaped, it has the effect of not only fastening the two sashes or table leaves, but at the same time draws them together. Any variation may be made in the form of the wedge-box and parts, so that they are adapted to receive a sliding bolt having the form or shape of a wedge, which is the main feature of the invention.

[Printed, 6*d*. Drawing. See Inventors' Advocate, vol. 3, p. 3.]

A.D. 1840, January 14.—N° 8343.

MARSHALL, Hezekiah.—This invention relates to the construction of window sashes, to fastenings applicable to window sashes and window frames, and to friction rollers for window sashes, consisting,—

1st. As regards window sashes, "in the construction of the " lower rails of the bottom sashes of windows in combination " with the portion of sills over or on to which the lower rails of " the bottom sashes close."

2nd. "Forming a groove or throat to the under side of the " lower or meeting rails of upper sashes."

3rd. Fastenings for window sashes. These fastenings are in two parts; they may be fixed to the sashes, or be applied to the sides of the window, and to the window frame or bead, and they not only act to secure the sashes, but also prevent them shaking. Several of such fastenings are described and shown, modified to suit various positions on the cross frames or sides of window sashes, and capable in some cases of being operated by the aid of cords. They are furnished with a kind of spring bolt projected by a spring from one part of the fastening attached to one sash to catch into the other part, which is attached to the other sash or window side.

4th. Friction rollers for window sashes. These rollers are mounted to revolve on a fixed axis at the back of a plate which is let into a recess and fixed flush in the sash side; a small portion of the periphery of the rollers comes through the plate and projects beyond its front surface, so as to bear against the sides of the window frame when the sashes are moved up and down, and thus prevent friction.

[Printed, 1*s.* 2*d.* Drawings. See Inventors' Advocate, vol. 3, p. 51.]

A.D. 1840, February 27.—N° 8402.

WILLIAMS, William Morrett.—This invention relates to a lock and key of peculiar construction, designed to supersede the use of tumblers. The lock is capable of modifications, so as to adapt the principle of construction to general purposes, including padlocks, and the unlocking of cocks or taps. Its chief feature of novelty consists in the use of a number of sliders, which are severally pressed upon by springs, their normal position being relatively a derangement. The key differs materially in its form and application from the keys in general use, having at its end a double rectangular turn-over box, containing in each chamber a series of punches or pins projecting forwards from the axis on which the key turns, one series being for locking, and the other for unlocking. The pins are of different lengths, and are designed to press upon the edges of the sliders when the key is pressed forward upon a projection or guide fixed on the front plate of the lock; in the first lock described, the key does not turn, the bolt being projected by a spring when a notch in each of the sliders comes into coincident position with the notches in all the other sliders, so as to form collectively an open passage for the bolt, an inclined piece on one of the sliders acting on a spring lever connected with or pressing upon it. In one modification, which is described and illustrated, the key is made to first press upon the sliders for the purpose of adjusting by pins or punches in its box, which is circular, and then to operate the bolt by turning.

Taps and cocks are fitted with sliders operated by projecting punches in the key box.

[Printed, 10*d.* Drawings. See London Journal (*Newton's*), vol. 18 (*conjoined series*), p. 281; Inventors' Advocate, vol. 3, p. 147.]

A.D. 1840, March 20.—N° 8440.

GERISH, Francis William. — This invention relating to "locks and keys, and . . . . other fastenings for doors, drawers, "and other such purposes," consists of—

1st. "Constructing locks in such manner that the same are made "secure by the application of a lock to the knob or handle, by which

“ means in making the lock for a door or other similar purpose,
“ where it would require considerable weight of key to move the
“ bolt, and where great security is required, the whole of the lock,
“ as well as the lock, requires to be made referable thereto by
“ numerous wards, tumblers, or instruments varying in their
“ figure, in order to present as many difficulties in the way of
“ picking the lock as possible by means of false keys or picklocks;
“ but by applying a small lock and key to the knob or
“ handle of a lock, and thus have the means of locking the knob
“ or handle from operating on the bolt, the large and strong lock
“ may be of the simplest action, having simply means of connecting
“ the motion of the axis of the handle to draw back the
“ bolt, and constructing the small lock acting to lock the handle
“ or knob of any convenient construction to offer the degree of
“ security desired, and by so doing the key to be carried for even
“ for the largest locks will be small, as the requisite strength to
“ actuate the strong bolt or bolts of the lock will be in the axis
“ of the knob or handle.”

2nd. “A simple mode of constructing a lock or such like
“ fastening within a tube, whereby in applying the same there
“ will be much less cutting away of the wood of the door or
“ other place of its application.”

3rd. “A mode of constructing keys of locks, which act by
“ means of tumblers, by applying a series of nebs or projections
“ around the axis of the key.”

[Printed, 8*d*. Drawings. See Mechanics' Magazine, vol. 33, p. 349; Engineers' and Architects' Journal, vol. 5, p. 204; Inventor's Advocate, vol. 3, p. 228.]

A.D. 1840, May 2.—N° 8489.

PEIRCE, WILLIAM.—This invention relating to the construction of locks and keys, has for its object:—

1st. The means or apparatus whereby to indicate an attempt made upon a lock with a wrong key, and to wound or mark the hand of the person making such attempt. The apparatus is shown and described as adapted to a tumbler lock, and is applicable to locks generally. It consists of a sharp-ended bolt or spur which is fitted to slide in a tube and by means of a strong helical spring is, whilst any attempt is being made, such as tampering with the lock with false instruments, disengaged and projected a certain distance from the face of the lock, with considerable force against the hand of the person using the false instrument, and when this takes place the lock has become detected.

2nd. Preventing the entrance and accumulation of dust and flue in the barrels of keys. This is effected by means of a plug, which is fitted to slide in the barrel of the key, and in its normal position rests slightly protruding therefrom. The plug is kept in this position by a spiral spring, which is deposited in the key barrel, and will yield to a slight pressure when the key is applied to the key hole, the plug being then forced up the barrel or stem of the key by the key hole center pin.

[Printed, 8*d*. Drawing. See Mechanics' Magazine, vol. 33, pp. 314 and 493; Inventors' Advocate, vol. 3, p. 306.]

A.D. 1840, June 13.—N° 8543.

WOLVERSON, JOSEPH, and RAWLETT, WILLIAM.—This invention relating to locks, latches, and fastenings for doors, consists as regards spring latches, in the construction and application of a hinge joint in lieu of the square staple employed for holding down the latch, the object being to avoid the friction which takes place between the underside of the ordinary staple in use and the upper side of the bolt, which has an oval opening formed in its shaft, through which the turning pieces and the knob spindle pass. The latter carries two "upright drivers," one projecting from each side to act respectively against two studs projecting, one from each side of the opening in the shaft of the latch. The follower is secured and permitted to move with greater freedom by the use of a martingale. A small sliding bolt is fitted to the underside of the latch case. The latch bolts in locks are fitted in the same manner with the hinge joint, the "upright drivers," and the projecting studs, irrespective of the other details.

Describes two modifications of what is called a "magnet bolt" because of its resembling form, and another species of fastening or lock bolt containing a plate with "cylindrical turn over" and a swivel link, adapted to a variety of doors, drawers, desks, boxes, etc. A spring fastening, which is operated by pressure on a knob, is also described.

[Printed, 8*d*. Drawing. See Inventors' Advocate, vol. 4, p. 35.]

A.D. 1840, October 22.—N° 8666.

CLARK, Thomas.—(*A communication.*)—This invention relating to the construction of locks, latches, etc., consists in the substitution of weights or weighted levers instead of the springs usually employed for keeping the bolts of locks in their proper position after having been shot by the key. The lock described and shown contains a tumbler and a weighted lever, both of which are mounted side by side on the same fixed stud or center passing through a hole in each at one end, their other ends having freedom to move up and down during the locking and unlocking by the turning of the key. The weighted lever has formed upon it two studs or projections for the purpose of catching or engaging with recesses in the main bolt, and retaining it in position; the lock is furnished with an ordinary latch bolt, which is also operated by a second weighted lever, to which at its inner end it is connected by a joint. This lever is so appropriately formed to be acted upon by two lateral prongs projecting from the knob spindle, that the bolt can be withdrawn by turning the handle in either direction. The first half turn of the key for either locking or unlocking raises the tumbler and weighted lever and releases the studs of the lever from the recesses in the bolt, which is then by continuing the motion of the key at liberty to move in either direction. Two or more tumblers may be employed in conjunction with the weighted lever. A modification is exhibited and referred to. The weighted lever may be adapted to sash fasteners.

[Printed, 10*d*. Drawings. See London Journal (*Newton's*), vol. 19 (*conjoined series*), p. 428; Mechanics' Magazine, vol. 34, p. 367; Inventors' Advocate, vol. 4, p. 277.]

A.D. 1840, December 23.—N° 8747.

BAILLIE, Benjamin.—This invention relating to locks and fastenings, chiefly refers to the formation of the rectangular and other shaped frames of the rims of lock cases, the angles of which are rounded off; and to dispensing with the screws usually employed to fix locks and box staples, such screws heretofore having passed through the cavity of the lock or staple, in opposite holes made to coincide through the front and back plates of the lock and staple cases. The locks described have studs or projections inside their cases, and these fit into eyebolts or hasps screwed to the door or woodwork or, as described and shown in respect to box staples, have projecting from the outside, metal pieces which enter as tenons into the woodwork, and are secured by screws passing transversely through holes made through them and through the woodwork of the door frame. The bolts of the locks shown are moved by toothed sectors or pinions engaging with a rack on the underside of the bolts, a stop for use when required being brought into operation for setting the bolt when locked by the turning of a handle or knob.

[Printed, 10*d.* Drawing. See Repertory of Arts, vol. 16 (*new series*), p. 102; Mechanics' Magazine, vol. 35, p. 28; Inventors' Advocate, vol. 5, p. 4.]

A.D. 1841, March 29.—Nº 8903.

TILDESLEY, JAMES, and SANDERS, JOSEPH.—This invention relating to the manufacture of locks consists of:—

1st. A lock constructed with tumblers carried by a sliding plate, which constitutes a part of the main sliding bolt. Fixed projecting from the side near one end of the sliding plate is a stud, which forms a fixed center on which the tumblers are mounted, their other ends having through them a peculiar formed opening, through which protrudes the end of a bolt stud, which is fixed to project from the back plate of the lock, and passing through a longitudinal slot in the bolt and sliding plate, it acts as a guide. The outer end of the key-bit is formed in irregular steps, or small surfaces differing in distance from the axis of the key, and so as to correspond with the relative distance between the position of the opening in the tumblers and the part of their lower edge against which the key acts whilst turning. The opening in the tumblers has the form of two transverse slots communicating by one longitudinal slot, in breadth corresponding with the bolt stud, so that the key in order to unlock or withdraw the bolt, must raise all the tumblers exactly the required height, otherwise the longitudinal part of the opening in each, will not coincide with the openings in the other tumblers, which must be the case before the bolt can move.

Describes a lock similar in construction to the above fitted with a detector apparatus, which when brought into action stops the moving back or unlocking of the bolt.

2nd. Relates to the adaptation of sliding tumblers to the ordinary sliding bolts of locks.

3rd. A sliding catch bolt with tumblers.

[Printed, 1*s.* 3*d.* Drawings. See Mechanics' Magazine, vol. 35, p. 316.]

A.D. 1841, May 6.—N° 8953.

HANCOCK, James.—This invention, relating to locks and keys, is described as adapted in its simplest form to a cabinet or drawer lock, and consists in fixing to project from the front plate of the lock, a round nozzle, through which there is a fine spiral passage leading into the lock directly opposite the heel of the bolt. The key has the precise cork-screw form to enter, and pass when turned, into and through the spiral passage in the nozzle, until its spiral end comes against a nib on the bolt heel, which is capable of being forced back by the further turning of the key, the action being against a spring by which the bolt is projected or locked. The spiral of the key and of the passage through the nozzle are made precisely alike in size, diameter, and pitch, by casting one upon the other.

A modification of the above arrangement is shown and described as adapted to a padlock, the entrance for the key being at the back or edge under the joint of the hasp.

The principle of the invention is also shown as applicable in the construction of taps and cocks.

[Printed, 6*d.* Drawing. See Mechanics' Magazine, vol. 35, p. 384; Inventors' Advocate, vol. 5, p. 310.]

A.D. 1841, July 14.—N° 9029.

BERRY, Miles.—(*A communication.*)—This invention relates to the construction of locks, latches, and similar fastenings, whereby a single lever plate is adapted to answer all the purposes of a lock, bolt, and latch. The plate is without a case let into a thin mortise in the door, the square spindle of the handle which is used to lift it, passing through a longitudinal slot in the lever plate, so that the latter has liberty to move outwards when shot into a hasp or staple in the door case by the key-bit, which turns in and engages with the notched sides of a recess formed in the underside of the plate; the plate used as a latch bolt is slid into the staple of the door jamb by a knob fixed on the inside of the door.

[Printed, 6*d.* Drawing. See London Journal (*Newton's*), vol. 21 (*conjoined series*), p. 164.]

A.D. 1841, September 28.—N° 9104.

STRONG, Theodore Frederick.—This invention relating to the construction of locks and latches, consists in :—

1st. "The combination of a series of two or more tumblers "attached to the bolt of a lock, and one to another, each tumbler

" having its fulcrum on the preceding tumbler of the series near " the end opposite to the fulcrum of that preceding tumbler, the " first of the series having its fulcrum on the tail plate or thin " part of the sliding bolt. Thus the fulcra of the tumblers are " alternately placed near the opposite ends of the tail plate, and " consequently the alternate tumblers rise, the one to the right " hand and the other to the left, when the lock is held up " in a vertical position, whereby a great complication of checks " against the operation of a false key is obtained from a few " tumblers."

2nd. "Attaching a secondary bolt, sliding transversely in the " main bolt of a lock, and acting against an abutment to form " a detent in addition to the complicated effect of the alternating " tumblers described as the first part of my improvements, this " transverse bolt being to be drawn back by one of the tumblers " before the main bolt can be withdrawn."

3rd. "The combination of the alternating tumblers with a " secondary bolt attached to the lock plate, and shooting into " a notch in the main bolt to prevent its being drawn back previous to the withdrawal of the bolt."

4th. "Adding to the combination of alternating tumblers a " detecting tumbler connected with the secondary bolt above " described under the second part of my improvements, which " detecting tumbler, on being lifted too high by a false key, " is there detained by a spring catch until released by the true " key."

5th. "The combination of a hooked catch piece with several " tumblers acting on one common fulcrum, the whole of the " tumblers constituting a substitute for the bolt, whereby a greater " number of tumblers of a given thickness may be introduced " into a thin lock than when the catch piece is pierced through in " the manner of a staple."

6th. "The application of a pair of links, one hinged to each " side of the sliding bolt of a spring latch, each link terminated " at the end opposite to the hinge by a hook catching on upon " the follower, whereby the followers, whether turning right or " left, act with very little friction in withdrawing the bolt."

7th. "The formation of a hinge by casting alone in parts of the " lock in which the motion on the joint is but small, for which " purpose a notch is cast in one of the pieces of the hinge, of the " form of about three-fourths of a hollow cylinder, into which

" notch a cylindrical protuberance or knuckle cast with the other " piece of the hinge fits and turns in a small arc of a circle, such " a hinge being peculiarly applicable to the joining of the links " to the sliding bolt of the spring latch mentioned under the " sixth head of my improvements."

8th. "The application of a forked connecting piece between " the followers and a lifting latch, for the purpose of communi- " cating the motion of the followers to the latch with very little " friction."

[Printed, 1*s.* 8*d.* Drawings. See Repertory of Arts, vol. 18 (*new series*), p. 88.]

A.D. 1841, November 9.—N° 9144.

SMITH, Jesse.—The novel feature of this invention relating to locks and latches, is the use of a pendent crank lever, connected in any appropriate manner to the spring bolt to be acted upon by the lever attached to the follow. This main bolt of the mortise lock described, which is suitable for a door, is of the ordinary make and acted upon by the turning of the key in the usual manner. There is a small private bolt arranged to be projected and withdrawn by the turning of a knob spindle. The crank lever has its fulcrum on a stud fixed projecting from the back plate of the lock, its vertical arm being pin jointed to the spring bolt, and its horizontal arm pressed upon by a spring; the follow lever has two arms respectively for withdrawing the bolt when the knob spindle is turned in either direction, one arm acting against a stud in the bolt for one direction, and the other arm lifting the horizontal arm of the crank lever for the reverse; the bolt being in its normal position when projected by the spring.

[Printed, 6*d.* Drawing. See London Journal (*Newton's*), vol. 22 (*conjoined series*), p. 194.]

A.D. 1842, January 15.—N° 9224.

POOLE, Moses.—(*A communication.*)—This invention relates first to what is designated the "combined snail wheel lock," second a "clam shell padlock," and third "a combination lock."

1st. The "combined snail wheel lock;" the key of this lock is caused to carry round with it any desired number of discs or wheels formed of flat pieces of metal, which revolve upon the center pin on which the key turns, each having a snail or other suitably formed eccentric curved perforation, within and upon which the bit of the key acts. The bolt is actuated by a pendent lever which hangs upon a fixed stud, its lower end being formed to enter a recess in the lower side of the bolt. The snail or eccentric curves in the wheels or discs vary in order to cooperate severally with one of the different steps or surfaces on the key-bit, and bring into coincidence a number of recesses formed, one in the edge of each disc, and thereby collectively form an opening to receive the end of the lever, which then moves with the discs and operates the bolt when the key is turned; a stop limits the action of the key and consequently also of the lever, and when the key is withdrawn, the end of a spring falls into a set of notches, one on the periphery of each of the discs. A snail wheel padlock is shown and described.

2nd. The "clam shell padlock" applicable to mail and travelling bags; the chief novelty consisting in the mode of forming the case which is made in two parts, the use of spring hooks on which the key operates, and the manner of connecting the bow or hasp to the case without a joint pin.

3rd. The "combination lock" is constructed with sliding horizontal tumblers of which from six to twenty may be employed; these tumblers are operated upon by an equal number of auxiliary tumblers, which receive motion from a corresponding number of ward-bits on the key. A portion of the end of the key shank is square, and each of the ward-bits has in it a square hole of corresponding size, so that the whole bit of the key is made up of these thin separate bits, which are packed close and kept together in position by a small round nut screwed on the end of the key.

[Printed, 1s. 2d. Drawings.]

A.D. 1842, February 21.—N° 9263.

GREENFIELD, DANIEL.—This invention relating to "the ma-
"nufacture of hollow metal knobs for the handles of door and
"other locks, consists in applying an interior lining of hollow
"iron within the brass or other metal (such, for instance, as
"German silver) whereof the exterior surface of such knobs is or
"may be composed, in order by such interior lining of hollow
"iron to give support and firmness to the said brass or other
"metal, which constitutes the said exterior surface, even although
"such brass or other metal may be so thin as that it would be

" liable to injure from accidental blows if it were not supported " by such interior lining of iron."

The process consists in stamping or cutting for the lining, out of thin plates of sheet iron, and for the outside from thin sheets of brass, German silver, or other suitable metal, by means of a fly press or other apparatus, discs of appropriate size, and then by a succession of operations with suitably formed dies, gradually bring them to a cup form. Two of these cups, one of iron placed inside one of brass or silver, are then gathered in in the usual way employed in such processes, so as to bring them to approach the flat spherical form required for attachment to the knob spindle.

[Printed, 10*d*. Drawing. See Mechanics' Magazine, vol. 37, p. 232; Record of Patent Inventions, vol. 1, p. 44; Engineers' and Architects' Journal, vol. 5, p. 358.]

A.D. 1842, May 24.—N° 9364.

DUCE, Joseph, the younger.—This invention relates to the construction of a lock and key. The lock when furnished with a lock bolt, consists in the employment of a tumbler which, instead of moving up and down in the usual manner, is caused to move to and from the front of the lock; when the lock is furnished with a latch bolt, the latter is operated by a handle with a spindle acting on a lever and follower, the spindle being easy of adjustment to the thickness of the door without alteration to its actual length. The ends of the key-bit are fashioned obliquely for the purpose of giving to the tumbler the required lateral movement, also as may be required to act upon the tail of the latch-bolt without the tumbler, and the slide bolt is actuated by means of the sliding contact of inclining surfaces; this slide bolt may be adapted as a window sash or shutter fastening. Several arrangements of door locks variously modified in their constructive details are described and exhibited.

[Printed, 1*s*. Drawing. See Record of Patent Inventions, vol. 1, p. 295.]

A.D. 1842, June 13.—N° 9395.

WILLIAMS, William Morrett.—The object of the invention relating to the construction of locks, is simplicity, facility and cheapness of construction, more perfect security, and the exclusion of dust. To this end the lock is constructed without a key hole, having in its stead a rectangular projection wherein are three round holes, which receive and exhibit the tail ends of three stops.

The bolt is similar in shape to other draw-bolts, except having a projection on one edge or a series of teeth forming a rack. In the action of locking or unlocking the tail end of the bolt slides on a runner with a guide-screw and socket, similar to the bolts of other locks, and there is also a driver, a driver spring, and a feather spring. In the upper edges of the stops there are slotted notches relatively at different and irregular distances. These notches are all false but one in each stop, which notch is deeper and longer than the rest. There is a rack-box screwed or fastened to the lock plate, the teeth on the bolt fitting into its several recesses. "The action of locking and unlocking depends upon pressing or "forcing forwards each of the stops to the exact or precise "distance required, and so as to bring all the deep or long "notches or slots into one line, or in coincidence in order to "admit or permit the bolt with its teeth to pass freely through "the notches, and through the groove in the rack-box at one and "the same moment of time. So also the short notches or slots "in the stops, which are false ones, will render it almost impossible to ascertain which are the right notches without the "application of a key having plugs of the exact required lengths, "and it will be easily perceived that the short or false notches "do render it extremely difficult and almost impossible to pick "or open the lock."

A modification is shown and described wherein the principle is adapted to a lock, having a rotating key similar in action to the keys of other locks.

Describes the application of the cylindrical rack-box fixed in an upright position, to a liquor cock or tap.

[Printed, 1*s*. Drawings. See Record of Patent Inventions, vol. 1, p. 401.]

A.D. 1842, October 20.—N° 9497.

STATHAM, JAMES.—This is an invention of locks adapted to the venetian blinds used in carriages. These locks are constructively arranged to differ from ordinary locks, which require two operations to open and two to close them, the object being so to arrange the lock of the blind, that the blind when the simple act of unlocking is performed shall open by a spring, and at the time of its being closed and locked, the spring shall be brought into a condition to re-open the blind when it is again unlocked.

Modifications of detailed arrangements of parts are shown and described, the invention not depending upon any special mechanical arrangement of the parts, but on its self-opening principle, which takes place when the blind is unlocked.

[Printed, 1*s.* Drawings.]

A.D. 1842, December 29.—N° 9578.

ROCK, Joseph, junior.—This invention relating to the construction of locks, has for its object the facilitating the movements of the working parts, and to this end consists :—

1st. In a mode of adapting to the tumbler or tumblers of all kinds of locks anti-friction rollers, the invention not being confined to any particular make.

2nd. Applying in back spring locks anti-friction rollers for their sliding bolts to move on, for the purpose of rendering their movements easy and facile, when locked and unlocked.

3rd. The application of a connecting link or crank to locks wherein the sliding bolt is lifted by the key, the link being at one end pin-jointed to the bolt, with liberty to move on a fixed stud at the other.

4th. Applying in locks a stop to the sliding bolt, to prevent the latter being moved back until the stop is raised.

[Printed, 10*d.* Drawing. See Repertory of Arts, vol. 2 (*enlarged series*), p. 83; Mechanics' Magazine, vol. 39, p. 44.]

A.D. 1843, January 31.—N° 9619.

BODDY, William Barnard.—The object of this invention, which relates to the construction of apparatus designed for opening, shutting, and fastening, either sliding or lifting window sashes and shutters, is to avoid the inconvenience of broken sash lines, deranged weights, and the shaking or rattling noise caused by the wind or otherwise. To this end "window racks" or indented pieces of metal or other suitable material are employed. "These racks are let into and fixed either in the edges of the "sashes, parting bead, or pulley style of the window frames; and "opposed to them in any of these positions, there is a little metal "box, similar to a small lock, with a catch or spring catch, to "strike into the before-mentioned rack. When the apparatus "containing the catch is fixed into the pulley style or window "frame it is stationary, but if fixed into the edge of the sash it "moves with it, or reversed; the rack by being fixed into the "pulley style is stationary, or by being fixed into the edge of

“ sash it moves with it. The action in such case will be the same in supporting the sashes. If the catch is fixed into the sash it is then withdrawn or relieved from its position by a knob, lever, or handle in front of the sash, placed conveniently for the thump, finger, or hand; but if the catch is fixed into the pulley style, it may be detached by the means of a key of any construction permanently fixed or capable of being withdrawn and secured by a small chain, or taken away altogether, similar to any ordinary key, making it impossible, particularly in the upper sash, for any person either within or without (without the key) to open it if shut, or, if at all open, to open it further; it may, however be shut easily. This key is introduced to the apparatus through a hole partly made in the pulley stile and inside lining. When the windows are large and heavy, I propose to attach my apparatus to each side of the window. . . . . At the bottom of the rack, the sharp edge of which is reversed, there is a square-shouldered recess cut into the wood for receiving a greater projection of the catch into which it enters, making it impossible when the sash is shut down to be opened on the outside, in consequence of a slight indentation in the upper part of the catch coming in contact with the sharp reverse edge of the rack.”

“ The means of securing the lower sash at any required height, ... is accomplished as follows :—In the upper part of the apparatus containing the catch there is a small bolt, which is thrown by a key (similar to a common lock) into a rack of square-shouldered indents, so that when the catch rests at any point of opening upon the bottom part of one of the square indents, the bolt being thrown enters the square indent, making it impossible without violence to move the sash until the bolt is withdrawn; the same key to be used for the upper and lower sashes.”

Anti-friction rollers are affixed to the sides of sash frames.

[Printed, 10*d*. Drawing. See London Journal (*Newton's*), vol. 23 (*conjoined series*), p. 354.]

A.D. 1843, July 13.—Nº 9838.

SMITH, HENRY.—This is an invention of apparatus adapted as night bolts for fastening doors by persons at a distance or otherwise, and to apparatus for sounding alarums when doors and places are opened.

The bolting or fastening apparatus is modified to suit doors which swing in both directions, as well as doors, shutters, and the like which simply open in the ordinary manner. The apparatus adapted to the latter, consists of a flat rotating bolt which moves a quarter of a revolution; it is an oblong metal piece moving on a fixed center, which passes through a hole near the front side of its midlength, the back bottom corner being rounded concentric with the center to receive on its periphery a pitch chain, which is passed round and fastened to the front bottom corner, directly under the center; in this vertical position the bolt end is kept by a volute spring, but when the chain is pulled the bolt, which is mounted on a plate attached to the door frame, is brought into a horizontal position, and made to enter a mortise in the edge of the door, or beneath a hasp or staple attached thereto. The chain is attached to a wire or rope leading, after the manner of arranging bell wires by means of sheave pulleys and crank levers, to any contiguous or distant point, where a handle on the end is made fast or hooked to a fixed stud, tension being kept upon the spring whilst the bolt is unfastened. A variety of other fastenings modified in form are described and illustrated.

The alarm apparatus, which communicates by means of wires or otherwise with the alarum, is fixed to the hinged side of the door, its center of action being coincident with the central point on which the hinges work or turn. This apparatus, of which several modifications are shown and described, is also applicable to windows and shutters.

[Printed, 3*s*. 10*d*. Drawings.]

A.D. 1843, September 6.—N° 9879.

THOMAS, WILLIAM.—(*A communication.*)—This invention, relating to fastenings for wearing apparel, is also applicable as a fastening for boxes, portmanteaus, bags, books, and such like purposes. Several modifications of the fastening are described and illustrated. These fastenings are designed to fasten together the two edges of a garment, say a lady's stays, or to fasten down a box lid and such uses. They are comprised of two long narrow metal strips or bands, which are fixed to the respective sides or edges of the article to be secured. Upon the edge of one part at regular intervals throughout its length there are tongues laterally projecting, and on the other part there is a corresponding series of slotted notches to receive the tongues, which are held therein by springs. When required to separate or unfasten the two parts, all that is necessary is to press up the united edges of the two bands to an angle with each other longitudinally, so as to press back the springs and thereby free the tongues from the slots. In some of the fastenings the tongues of one part are held in their places in the other part by a sliding metal strip, which is operated by a spring endwise in one direction for fastening, and for unfastening is pulled in the opposite direction. Fastenings suitable for bags are also shown and described.

[Printed, 1*s*. 2*d*. Drawings. See London Journal (*Newton's*), vol. 25 (*conjoined series*), p. 170.]

A.D. 1843, November 25.—N° 9963.

TANN, EDWARD, senior, TANN, EDWARD, junior, and TANN, JOHN.—This invention relates to the manufacture of locks and latches, and to the construction of iron rooms, safes, and other repositories, to which the first five parts of the invention are devoted.

The locks described in the sixth part are fitted with six tumbler levers comprising two sets of three each, the tumblers of one set being mounted on the end of one of two studs which stand apart fixed to the lock plate, and form guides for the sliding plate to which the bolt is attached, those of the other set being mounted on the other stud, the tumblers of the two sets lapping together alternately, form a combination of six. Above the bolt plate and tumblers, horizontally mounted at one end on a fixed stud, is what is termed "a reliance bolt." This bolt is a kind of catch lever, its free end having the form of a hook or tooth; rising from its upper edge at its midlength is an upright piece, the top of which has the shape of a sharp angular ridge, designed to engage with a "pallet" of similar form attached in a reversed position to the end of a spring. This reliance bolt or lever remains in its normal position unless an attempt be made to pick the lock by any instrument which, not having the configuration of the true key, causes the sharp ridge of the upright piece to pass under the ridge of the pallet, so as by the pressure of the spring to bring the opposite sides or inclining surfaces of the piece and the pallet respectively in contact, and force the tooth of the reliance lever into a notch in the bolt plate, whence it can only be released by the application of the true key.

The latches are constructed with a series of tumblers operated by the bit of the key, which first moves a pendent lever carrying the stump that works through the gatings and then lifts the tumblers, which raise the latch. This latch is composed of four separate latch plates packed side by side, each having two vertical slots to receive two guide pins which are fixed to the back plate of the latch case, and serve to keep the latch plates in position as they are severally lifted independently by the tumblers, each of the latter co-operating with one of the latch plates only.

Reference is made to a modification shown on the drawing, but only described as a perpendicular lifting latch.

A Disclaimer and Memorandum of Alteration in respect to certain parts of the Specification which relate to the construction of safes and depositories, was filed by the patentees on the 2nd December 1851.

[Printed, 2*s*. Drawings. See Engineers' and Architects' Journal, vol. 7, p. 237 (*with Disclaimer*).]

A.D. 1843, November 25.—N° 9965.

ROCK, Joseph, junior.—This invention relating to locks and latches, consists:—

1st. In the application in the construction of locks and latches, of a spring or spring and roller, placed at the back to facilitate the action of the latch bolts.

2nd. Employing in various ways in the construction of locks and latches, inclined planes for obtaining inclined action, thereby facilitating the movements of the latch bolts.

3rd. Applying a movable spring striker and a sliding piece by way of improvement in the construction of box staples for rim locks and rim latches.

4th. Relates to a mode of applying in connection with rollers, followers to the latch bolts of locks and latches, which tend to insure the return of the latch bolt when the knob is loosed.

5th. "Relates to a mode of forming the cases or framings or
" parts thereof of rim locks, rim latches, flush locks, flush latches,
" padlocks, box, drawer, cupboard, and stock and other locks, by
" means of raising sheet metal into the desired shapes and patterns
" by suitable tools or dies."

[Printed, 2*s*. Drawings.]

A.D. 1844, January 30.—N° 10,032.

FLETCHER, William.—This invention relates to the construction of locks and latches. The bolt of the lock first described carries a small roller free to revolve on a center stud. The bolt is moved by the inclined sides of an indentation in a sliding bar engaging with the roller, and the bar is only free to be moved when three retention levers, disposed in recesses formed by thin intermediate plates, and mounted side by side on the same fixed center, are acted upon by the vertical ends of three other or lower cranked levers which are also mounted upon a fixed center or fulcrum, and receive motion from the key which acts upon their lower ends, the arms of the key-bit being made of different lengths or otherwise.

A modification of the levers gives their edges a different curvature, so as to limit the action of the key to a more confined range, just sufficient either way to enable the levers to confine or release the bolt.

Describes and illustrates in plan and section a variety of details relating to the construction of bolt latches, including three different bolt latches of simple and effective construction; a securing hook or catch to be applied to the frame or jamb of a door for the purpose of securing the toe of the bolt when shot into its recess or staple, and modifications of securing hooks designed for making fast the bolt of a lock when shot.

[Printed, 10*d*. Drawings. See Engineers' and Architects' Journal, vol. 7, p. 320.]

A.D. 1844, May 14.—N° 10,182.

PITT, Benjamin.—This invention relates to the construction of locks and latches, and to spindles and knobs applicable to doors and similar purposes.

In locks and latches constructed according to the invention, "one sliding bolt in the lock is made to answer the double purpose of a spring bolt or latch, which will fasten of itself when the door to which the lock is applied is closed, and which bolt can be unfastened from either side of the door by turning a knob handle in either direction; and the same sliding bolt is also made to answer the purpose of a locking bolt, which, by aid of the key inserted from either side of the door, can be shot farther out from the lock in order to lock the door, and then the said bolt cannot be withdrawn so as to unlock the door except by aid of the key." This part of the invention is described and illustrated as applied to a mortise lock constructed with a sliding bolt with a tumblers or tumblers, and modifications of the constructive arrangements are described and illustrated, as also of latch locks.

In respect to spindles and knobs for locks and latches, they "are so constructed that they will adjust themselves to suit the "thicknesses of the doors to which the locks or latches may be "applied, without requiring any alteration of the spindles to "suit doors of different thicknesses, and the knobs are firmly "secured to the wood of the door on one or both sides thereof, "so as not to be liable to come off or work loose, as is the case "in the ordinary way of affixing the knobs to the ends of the "spindle, and depending solely on the spindle for sustaining the "knobs."

Spindles and knobs constructed according to the invention, it is stated "may be applied to doors which have been heretofore "fitted with knobs and spindles of the common kind, retaining "the same locks, if they are of good construction and in good "condition, or applying new followers to such locks, if requisite, "in order that they may fit truly to the new spindles."

[Printed, 1*s*. 4*d*. Drawings. See Engineers' and Architects' Journal vol. 10, p. 357.]

A.D. 1844, October 14.—N° 10,346.

HURWOOD, GEORGE.—This is an invention of apparatus adapted for moving, sliding, and fastening windows, glazed openings, and the sliding frames of greenhouses and similar structures. The apparatus consists of a worm pinion, which is fixed upon a light shaft in a position to engage with a worm-rack fixed to the sash, frame, or article to be moved. Rotary motion is imparted to the shaft by means of a key or handle, and the direction of motion when required is changed by other similar rods or shafts connected by bevel tooth wheels. The key or handle employed is to have a particular shape adapted to the form of the end of the shaft or spindle, and when, by means of levers and connecting rods, one or a series of windows or frames is opened otherwise than by sliding, worms and worm wheels are employed.

A variety of these fastenings, modified to show their general application, are described and illustrated.

[Printed, 1*s*. 2*d*. Drawings. See Repertory of Arts, vol. 6 (*enlarged series*), p. 352.]

A.D. 1844, November 2.—N° 10,376.

BEWLEY, William.—This invention, relating to fastenings for doors, windows, and similar purposes, " consists of so arranging " the parts of locks and such like fastenings that the bolts thereof " may, by the act of closing the doors (or other articles to which " they may be applied), be set free, and thus fasten such doors " or other articles; and that the moving of the bolts, in order " to open the doors or other articles, shall bring the bolts into a " position to be held, till, by again closing the doors or other " articles to which such fastenings may be applied, the bolts may " be again released, and so fasten the door or other article." The lock as described and shown is suitable for a coach door, it has no complexity of construction, but simply consists of a latch or lever bolt constantly pressed outward by a spring, and drawn back by a handle, the length of its motion being regulated by stops. A mortise lock constructed on the same simple principle, and adapted to doors and French windows, is also described and illustrated.

[Printed, 8*d*. Drawing. See Engineers' and Architects' Journal, vol. 8, p. 171.]

A.D. 1845, April 15.—N° 10,611.

CARTER, George.—This invention, relating to locks and latches, consists:—

1st. In combining two spring latches to act conjointly, one catching above and the other below the same striking piece, which has a double incline for acting against corresponding bevels respectively formed on the latches, both latches being caused to move simultaneously towards each other by the same spring, which consists of one piece of wire suitably shaped.

2nd. A lock suited for a box or portmanteau, has in its construction a pair of spring catches acting conjointly to catch one striking piece, which has a double incline to correspond with two inclines, one on each latch, the two latches being caused to approach each other by the use of one spring.

3rd. A padlock with two spring catches engaging with one striking piece, and urged by one spring.

4th. Relates to the sliding bolt described in reference to a door lock or latch; this bolt is moved inwards by a spring and outwards by a knob, handle, or key.

5th. Applying in a lock of simple construction adapted for a portmanteau or box, a tooth "projecting laterally from the sliding

" bolt of the lock through or beyond the inner plate of the lock " in a direction inwards towards the interior of the portmanteau " or box, so as to lock into a suitable notch in a plate which is " fastened to the inside of the top or lid of the portmanteau or " box, without requiring any hinged hasp to be applied to such " lid or top."

[Printed, 1*s*. Drawings.]

A.D. 1845, April 22.—N° 10,629.

MACKIE, William.—This invention relates to window sashes, and to fastenings for window sashes and shutters. As regards sashes, it refers to modes for so fitting them into the window frame that when required they may be easy of removal; to modes of hanging the sashes, attaching the sash lines, and securing them when unfastened or disengaged from the sash.

The sash fastener is designed for the purpose of preventing the shaking or rattling of the window sash or sashes, which is accomplished by a flattened bolt, the edge of which is made to press against the sides of the frame between which the sashes slide up and down. The bolt has a curved slot, through which a pin is carried by a sliding bolt, that is fitted to slide on a plate screwed to the side stiles of the window, and when, by means of a projecting knob it is slid up and down by the hand, the flattened bolt is by the action of the pin in the curved slot caused to project and press against the side of the sash frame, remaining in that position until again shifted by means of the knob.

The shutter fastener is designed "to prevent the shutter from " warping, and to take it out of winding when it has become " warped, and to hold it in its place in its box at all times." This apparatus consists of a hooked lever, which is made to engage with a hook attached to the back of the shutter; by this means the latter is forcibly drawn into its boxing, and held there against a stop or fillet.

[Printed, 1*s*. Drawing.]

A.D. 1845, July 12.—N° 10,763.

RATCLIFF, Edmund.—This invention relates to the furniture of door locks and latches, and consists :—

1st, "In making the spindle of the lock with screwed ends " fitted with loose flanged collars kept on by screw nuts, in such

" manner that the said spindles may be adjusted by means of " such nuts to any thickness of door by the carpenter, without " the aid of a smith."

2nd. " Giving additional bearings to lock spindles " to keep them steady when turned by the knob, and to prevent them getting rickety when carrying heavy knobs.

3rd. " Fixing such door knobs as are fixed by the roses on " doors, independently of the spindles, by means of a screw cap " instead of by the flanges and rivetted rings heretofore used for " that purpose."

[Printed, 10*d.* Drawing.]

A.D. 1846, March 25.—N° 11,152.

COTTERILL, Edwin.—(*Partly a communication.*)—This invention relates to locks and fastenings for doors and windows, and to fittings and appliances adapted thereto, and consist of,—

1st. "The general arrangement of the parts of a lock in which " the latch bolt of the said lock slides within the lock bolt."

2nd. The arrangement of those parts of a lock which effect the withdrawal of the latch bolt.

3rd. " The construction of a plate latch in which curved arms " or levers attached to the axis of the door knobs raise the said " latch by the turning of the said knobs; also the use of a " helical or coiled spring in the construction of plate latches."

4th. " The construction of bolts withdrawn from their staples " by the action of a wedge moving in a line at right angles to " the motion of the said bolts."

5th. " The construction of a lift latch, and the method of " adapting the same to doors, opening either on the right or " left."

6th. "The construction of a thumb lifter to be used with lift " latches, in which the thumb plate of the said lifter is situated " at right angles to the lever of the same."

7th. " The construction of lift latches, in which the motion of " the door knob and axis, when the said knob and axis are turned " in one direction, is communicated directly to the said latch, " and when the said knob and axis are turned in an oppo- " site direction, the said motion is communicated to the said " latch through a small lever, so as to reverse the direction of " the same. that is to say, to produce the lifting of the latch

" in whichever way the said knob and axis are turned; also " the form of the end of the latch and receiving box for the " same."

8th. "The construction of an axis for doors, or for windows " opening in the manner of doors, in which a bolt pressed by a " spring into indentations on the periphery of a wheel on the " said axis holds the said doors or windows open at any desired " angle."

9th. "The construction of an adjusting door spindle by intro- " ducing a screw into the said hollow and square spindle, the " said screw as it advances or recedes in the said spindle carrying " with it the said knob, and thereby virtually lengthening or " shortening the said spindle."

10th. "The construction of arm springs for closing doors, by " attaching the arm of the same to a spring box instead of " directly to the spring, the said spring box being connected with " the said spring; also the inclined plane and indentation on the " door on which the roller of the said arm rolls and rests; also " the attaching of the arm directly to the door, and tho intro- " duction of a telescope slide with a spring therein into the said " arm."

11th. "The particular arrangement of the parts of a double- " acting door spring."

12th. "Methods of constructing door springs."

13th. "Method of constructing sash fasteners."

14th. "The construction of rack pulleys for window blinds, in " which the rack is situated on the back of the frame of the said " rack pulley, and the method of releasing the spring from the " same."

15th. "The general arrangement of the parts of a door bolt, " by which two bolts are simultaneously shot out in directions at " right angles to each other."

16th. "Method of constructing and applying a door spring to " a door."

17th. "The construction of a padlock, in which the mechanism " for locking the same consists of a rim or circle in one part " thereof, turning in a groove in another part thereof, the said " rim or circle being interrupted or cut away in certain places, " and the said groove, in which the said rim or circle turns, " being also interrupted by a series of bars moving radially,

" notches or indentations being cut in the said bars, which, " when the key is introduced, are made to coincide with and " make continuous the said groove, and thereby allow of the " rotation of the said rim or circle."

18th. "The attaching of knockers and bells to the inside of " doors, the said knockers being knocked, and the said bells " being rung by parts or mechanism on the outside of the said " doors."

19th, "The construction of a roller for roller blinds, which " may be lengthened or shortened by one part of the same " sliding in the other; also the use of a double receiving box " for winding and unwinding the cord by which the blind is " raised and lowered."

[Printed, 2*s*. 2*d*. Drawings. See Patent Journal, vol. 1, p. 344.]

A.D. 1846, May 7.—N° 11,200.

SHEPARD, Edward.—This invention relates to apparatus adapted for the opening and closing, and locking or unlocking with facility, doors, gates, shutters, windows, and the like, which are slung to a carriage that travels on the upper surface of two lever frames placed lineally, their ends meeting directly over the point where the two doors or gates meet. Each lever frame rests on a central fulcrum, and they form inclined planes when tilted in either direction. When the apparatus is adapted to sliding gates or doors, these lever frames are disposed directly over them and are brought relatively either to a perfect level, or made to incline in either direction when the two contiguous ends are either lifted or depressed by a horizontal lever, to the short end of which they are connected by separate links, motion being given to the lever either up or down by the pulling of a chain, which is passed round pulleys and has its two ends attached to the free end of the lever. The gates or doors open simultaneously when the contiguous ends of the lever frames are lifted, so as to incline their upper surfaces outwards, and when required to be closed the contiguous ends of the frames are so much depressed as to cause the gates or doors to move towards each other and close, and they will remain in that position until the ends of the lever frames are again raised.

[Printed, 10*d*. Drawing. See Mechanics' Magazine, vol. 48, p. 505; Artisan, vol. 8, p. 114.]

A.D. 1846, July 6.—N° 11,283.

DE LA FONS, John Palmer.—This invention relates to the construction of locks and other fastenings. The locks are fitted with rotating bolts, and a variety of such locks modified in form and detail, are described and illustrated. These are designed to show the parts directly connected with the bolt, and different modes whereby they are operated by the key, including padlocks, locks with hasps, rotary bolt fastenings for carriage doors, windows, and such like purposes, and the description of a lock intended to show "the great degree of security and perfection "attainable." This latter lock is constructed with protectors acting on the principle of tumblers; these protectors when the key is turned are raised only just sufficient to clear a point in the bolt either more or less preventing its action, and according to the increased number of protectors employed, so in proportion is the security of the lock and the difficulty of invading it augmented. Each protector varies in form and thickness, and four of them are contained in the lock described. An addition may be made to the lock of a tell-tale, made by extending the sentinel to the end of a spring, which would prevent its falling excepting attempts were made with false keys.

[Printed, 10*d*. Drawing.]

A.D. 1846, July 15.—N° 11,299.

THOMAS, William.—(*A communication.*)—This invention relating to locks and fastenings for carpet bags, to locks for general purposes, and to the frames of carpet bags, consists in fitting to such frames, side catches comprising two hooked parts for engaging with each other. These are fixed, one part to the main frame, and the other part to the secondary frame, the two frames being hinged together at their extreme ends, which are turned down, and shaped in the usual way. Instead of the parts of the catch acting by means of springs, the joint holes in the secondary frame through which the joint pin passes are slotted, so that the frame has liberty to rise when the inclined surfaces of the two hooks come together and override and clasp, in which position they are kept whilst the bag is locked. Modifications are shown and described. The key of the lock which may be of the ordinary tumbler or other description, has an expansible or sliding bit, which moves radially on a plain piece attached to and laterally projecting at the end of the key, the tumblers of the lock being placed beyond the range of the bit of an ordinary key. The chief circular ward in the lock is eccentric to the centre pin, and when the key is inserted in the keyhole the sliding piece, whilst the key is being turned, is gradually extended thereby, and made to reach and operate upon the tumblers. The lock is fitted, in addition to the ordinary tumblers, with a pressure tumbler, which moves with the bolt.

A tumbler door lock with a pressure tumbler and an eccentric ward adapted to operate a key fitted with an expansible bit is described and illustrated.

[Printed, 1*s.* Drawings.]

A.D. 1846, December 14.—N° 11,491.

CHUBB, JOHN.—The object of this invention relating to the construction of locks, is to obtain the utmost possible security against attempts made with any kind of spurious instruments, picklocks or false keys, and this is effected by increasing the number of tumblers and arranging them in four sets round the centre pin whereon the key turns, the key being furnished with three additional separate bits to act independently with each of the sets of tumblers, the several bits being set to act simultaneously, so that all the sets of tumblers are operated at the same moment by means of stump pins, which are fixed in a suitable position in a rotating plate, a separate stump to each set of tumblers; the plate is revolved by the key, and the stumps act upon the different sets of tumblers at one particular point in its revolution. In the sliding bolt of the lock there is a transverse notch made to receive a stud, which is fixed projecting from the plate, and by which the bolt is shot out or withdrawn when the plate is revolved in either direction. "But all such endway
" motion of the sliding bolt and turning motion of the circular
" plate is effectually prevented by the aforesaid stumps being
" interlocked in the notches of the tumblers, except when every
" one of these tumblers has been lifted by action of the bits of
" the key into the proper intended position for each of the tum-
" blers respectively, so as to bring all the notches of the tumblers
" of each set into correspondance one notch with another, and
" with the stump belonging to that set, which being done with

" all the tumblers simultaneously, then none of the tumblers will
" offer any impediment to the motion of the stumps, but they
" and the circular plate in which they are fastened, and also the
" sliding bolt, will be at liberty to be moved by the usual action
" of one of the bits of the key against what is called the talon of
" the bolt, or, in the case of a latch, such motion may be communicated to the bolt by reaction of a suitable spring for
" shooting the bolt, altho' the motion for withdrawing or unlocking the same bolt must be given by the aforesaid action of
" one of the bits of the key against the said talon of the bolt."
Each set of tumblers is provided with a detector, and to each lock is provided an escutcheon lock with hardened steel bolt, to shut the main keyhole.

The lock is shown as applied to secure four bolts, which are first shot by a handle so as to fasten a door top and bottom, and at the two opposite sides. The handle rotates a wheel mounted on the inside of the door; suitably formed in the wheel there are four eccentric curves, one to move each bolt, and the main bolt, of the lock shoots into a recess in the plate.

Spring latches are made on the same principle of construction; these acting in conjunction with four bolts will shoot themselves when the bolts are projected by the turning of the handle without the intervention of the four-bitted key, which is only required to withdraw the bolt of the latch from the recess in the wheel.

This invention is very carefully described and illustrated.

[Printed, 1*s.* 8*d.* Drawings. Artizan, vol. 5, p. 87; Patent Journal, vol. 3, p. 146.]

A.D. 1847, January 11.—N° 11,523.

CHUBB, JOHN, and HUNTER, EBENEZER.—This invention relates to latches, latch locks, and other locks for fastening, the object as regards latches and latch locks being to prevent their being unlatched, or unlocked, withdrawn or forced open by false keys.

1st. " In latches and latch locks, whereof the outer end of the
" latch or bolt is bevilled suitably for being lifted up . . . . . .
" by oblique action of such bevilled outer end against a fixed
" inclined plane or curve on the hasp or striking plate when the
" door or drawer, or till or other moveable (to which the latch or
" latch lock is applied) is in the act of shutting; the nature of

" the improvement being that when the latch or bolt after having " been so lifted or pushed back by oblique action as aforesaid, " and then shoots out suddenly by self-action or spring action at " the final closing of the door, drawer, or till, or other moveable, " for fastening the same as usual in ordinary latches and latch " locks, that the latch or bolt shall by virtue of the improvement " become securely detained by means of tumblers, which will " prevent it from being withdrawn or forced back, and thereby " will prevent the door, drawer, or till, or other moveable being " opened; those tumblers coming into operation of themselves " in the manner and by the means . . . . . . described at the " time of the said sudden shooting out of the latch or bolt by " self-action or spring action, without requiring any use of a key " or other manipulation for bringing the tumblers into operation."

2nd. " In detector locks, also applicable to latches or latch " locks, of applying a detector spring of the kind . . . . . . " described, at that side of the tumblers which is most remote " from the keyhole, in order to render such detector spring wholly " inaccessible to any instruments which can be introduced at the " keyhole."

3rd. In detector locks instead of placing the detector near the keyhole it is disposed " above the tumbler, so as to operate upon " a projection at the upper part of one of the tumblers, the " detector being at the opposite side of the tumblers to that side " thereof where the key operates for lifting the tumbler, so that " no instrument that can be introduced at the keyhole can be " made to reach the detector for undetecting the same."

A tumbler lock, or padlock, and a latch lock constructed respectively with a detector, also spring latches and latch locks are described and illustrated.

[Printed, 1*s*. 4*d*. Drawings. See Patent Journal, vol. 3, p. 186.]

A.D. 1847, February 8.—N° 11,568.

LOACH, John.—This invention relates to fasteners adapted for windows, shutters, doors, and tables.

In the construction of these fasteners a lever is employed, whereby when applied to windows, separate motions or effects are communicated to the sashes to which they are attached, the sashes being either lowered or raised to the desired height, are drawn or pressed closely together and caused to press against the window frame so as to prevent all shaking. These fastenings in a modified form are applicable to doors and shutters, and as fastenings for general purposes. The end of the lever which is mounted on a plate attached to one sash, has the form of a curve eccentric to the fixed stud or centre on which the lever moves, and this curved end engages with a stud fixed to another plate which is attached to the other sash; by this means when the free end of the lever is moved in one direction its curved end acts as an incline or internal wedge against the stud, and draws the two parts or sashes together, the return of the lever being prevented by a spring or a catch taking into one of a number of notches formed on the back edge of the lever. The form of the lever and the mode of securing it may be modified.

[Printed, 6*d*. Drawing. See London Journal (*Newton's*), vol. 31 (*conjoined series*), p. 104; Patent Journal, vol. 3, p. 287.]

A.D. 1847, April 16.—Nº 11,659.

COLLETT, Charles Minors.—This invention of apparatus arranged for affording additional security to locks, consists,—

1st. Of a detaining apparatus which is designed to prevent the withdrawal of any false key or instrument that may have been employed in attempts to open the lock surreptitiously. This part of the invention is shown as applied to a portmanteau lock, the details comprising the apparatus being mounted on or co-operating with what is termed the "protecting plate," which is secured to the back plate of the lock by screws. The movements of the sliding bolt of the lock are governed by tumblers, in the ordinary way brought into coincidence by the action of the key to permit the shooting of the bolt, and afterwards returned to their normal position by springs. When the key is passed through the main keyhole into the lock it enters a key hole in an eccentric, which is pressed close to the protector plate by a spring, and has its central boss fitting in a hole in the plate, and by means of this eccentric the other parts constituting the detaining apparatus are operated. If a false key be introduced, it becomes fast in the lock, and cannot be withdrawn excepting by the owner of the lock, who, mainly by a particular adjustment of three indicating movable concentric rings which externally encircle the keyhole, is alone able to set it free.

A modification of simpler construction fitted with the protector apparatus is also described and shown.

The other part of the invention consists in the application to common locks of one or more tumblers to be placed on the unoccupied space between the bolt and the front keyhole plate. To locks so constructed, the detaining appppratus may be applied. Also adapts the detaining apparatus to a Bramah lock, to effect which the front plate of the lock is made perfectly flat, similar to an ordinary lock, the barrel instead of being fixed projecting from the front plate is made to protrude at the back. Several modified examples of these locks are described and illustrated, and also the additional application to locks of a spring-catch-sliding-bolt in combination with the detaining apparatus.

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1847, September 16.—N° 11,869.

HANCOCK, WILLIAM.—This invention, relating to the construction of bolts, locks, and fastenings, consists,—

1st. Of a mode for securing a sliding bolt, for which purpose a small lock is recessed into the door frame or post in a position to shoot its bolt when locked, into a notch or recess made in that part of the projecting end of the sliding bolt which enters the door frame, or the hasp, as the case may be.

2nd. Consists in applying a small secondary lock to act in the manner above described, to secure or detain the bolts of door locks, and spring catches.

3rd. Locks for iron and other safes, operated by means of a lever projecting from the lock spindle; this lever turns three tumblers which throw out in opposite directions four bolts, in one of which there is a lock, whereby all the bolts are secured; or, for greater security, to each of the four bolts may be fitted a separate lock.

4th. Applying the principle of double fastening to locks generally.

5th. Relates to a dovetail fastening, adjustable by a screw.

6th. Metal fastenings for windows constructed on the dovetail principle, and to which the secondary lock fastening may be applied.

7th. A metal fastening adapted to bedsteads, consisting of a dovetail bracket arrangement, all screws, mortises and tenons being dispensed with.

8th. A metal bed-tester fastening, on the dovetail principle, dispensing entirely with mortises and tenons.

9th. The application of the dovetail joint to supporting brackets.

10th. Stair rods, made triangular in transverse section, in order that they may severally lay closer to the angle of the stair.

11th. A button fastening adapted for straps and braces, and to purposes where strength is required.

12th. Catch or fastening for card, loo, and other tables, fitted with a dovetail slide operated by a lever screw.

[Printed, 1s. 4d. Drawings. See Patent Journal, vol. 4, p. 448.]

A.D. 1847, December 31.—N° 12,009.

JENKINS, Mary.—This invention, relating to the manufacture and coloring of pins, hooks, eyes, and to window and other fastenings, consists,—

1st. Of a fastener for dresses, intended to supersede the use of the hooks and eyes in common use. It comprises two long eyes or flat loops of wire, the ends of the wire being turned or bowed round in the ordinary fashion of wire eyes, for the purpose of being sewn to the garment; the looped end of one eye is bulged out as if by pressure on the end, causing it to project laterally, so that when the widened end of this loop is inserted endways into the other eye or loop, and then brought into a line therewith, it holds by the shoulders of its widened end, and will resist any ordinary longitudinal tension.

2nd. Describes the process employed for coloring or japanning pins, hooks, eyes, curtain bands, buttons, fastenings, and similar articles, which are first cleansed and freed from all dust and dirt, and then the entire surface of each article is moistened with oil of turpentine. In this state they are scattered, along with a proper portion of the enamel or japan mixture, in pans of about a foot square, and placed for 15 minutes in an oven heated to a temperature of about 210° or 220° Fah. The pans are then taken out and the articles cooled in the air. The process is repeated twice or thrice, excepting the application of the turpentine, which is only used again to separate those which may be sticking together. The mixture for producing a red enamel is composed of Persian, Vandyke, or Chelsea red, 1 lb.; superfine polishing varnish or gums, half a pint; spirits of turpentine, a quarter of a pint. To produce other tints or colors, it is only necessary to alter the pigment or coloring matter.

3rd. Fastener for window shutters, combining a hinge, a catch, and a button, all made of brass or other metal.

4th. A candle fastener, which also constitutes a save-all, opposite sections of which are made to turn up, and by pressing laterally against, hold the end of the candle when it is raised in the socket of the candlestick.

[Printed, 10*d.* Drawing. See Repertory of Arts, vol. 12 (*enlarged series*), p. 175; Patent Journal, vol. 5, p. 154.]

A.D. 1848, April 20.—Nº 12,129.

BRITTEN, John.—This invention relates to many things, comprising heating, ventilating, lighting, door hinges and springs, carriage window bolts, and arm springs and catches for doors, and consists :—

1st. " Of a translucent door for stoves or closed fire-places," consisting of " strips of plate or other glass with ground " edges, placed in grooves in the frame, and resting loosely " on one another, so as to admit of individual expansion and " contraction."

2nd. Ventilating apartments by closing up the fire by a door, and causing the air which passes up the fire-place to be drawn by a tube from the top of the room.

3rd. Gas burner. The tube through which the gas ascends has its upper end bevelled off on the inside, and is covered with a cap, the under surface of which has a number of studs or projections.

4th. A candle guard to prevent the guttering of candles when exposed to draughts.

5th. Opening carriage windows on vertical hinges, instead of raising and lowering them, the arrangement being calculated to prevent draughts; a spring bolt or catch is employed to hold the window in position either slightly, partially, or entirely open.

6th. A double action door spring, in which a curved or irregular incline is made to move backwards and forwards over or under a roller impelled towards it by means of a spring or weight, and guiding the roller by a radius rod instead of ordinary slides.

7th. Various combinations of curved inclines and rollers, springs, and lifting hinges adapted to doors.

8th. Adapting the knuckle joint in the construction of door springs.

9th. "The construction of door fastenings in which a movable
" catch attached to the door post is made to release its hold
" upon the door, by communicating motion to part or parts of
" the apparatus attached to the door, and also the use of the
" rotating spindle in the position ordinarily occupied by the
" latch bolt; such catch may be made to rise or fall, ...
" or it may be made to move in a lateral direction so as to lay
" hold on a fixed stud projecting from the door, from which it
" may be liberated by projecting a movable rod against it from
" the inside of the lock."

[Printed, 8*d*. Drawing. See Artizan, vol. 7, p. 82; Engineers' and Architects' Journal, vol. 11, p. 370; Patent Journal, vol. 6, p. 51.]

A.D. 1848, September 28.—N° 12,274.

NEWALL, Robert Stirling.—This invention relates to locks, and to apparatus for spring fastening or tightening the stays and rigging of ships.

As regards the construction of locks, it consists in the use of two concentric rings, one fitted to slide round within the other or outer ring, which is fixed to the front plate of the lock, a hole in the center of the inside ring constituting the keyhole. Diametrically through the two rings there is bored a hole which intersects the keyhole or common center, and fitted to slide in this hole or holes respectively on the opposite sides of the center are two small key bolts in radial position, one pointing directly across the central keyhole to the other. Each of these key bolts is in two loose parts abutting end to end; the ends of the two outer parts being constantly pressed upon by a vulcanized rubber or other spring, keeps the inner parts of the two bolts convergently pressing against a shoulder in their respective holes in the inner or key ring, their extreme ends which are of smaller diameter protruding into the keyhole. The bolt is operated by a stud fixed projecting from the back of the key-ring, and at the sides of the barrel of the key, which is enlarged to fit the central hole in the key-ring, there are two longitudinal grooves one diametrally opposite the other. Each of these grooves has variations in its depth, and they are made to receive the small protruding ends of the key bolts when the key is applied to the lock and pressed in up to a collar or annular shoulder; the bottom of the grooves pressing divergently against their small ends drives them apart, and the adjustment is such that when the shoulder of the key touches the front of the lock plate, the point where the two parts of the key bolts abut against each other in their respective holes, arrives exactly at the point of division between the two rings, so as to set the key ring at liberty, which can then be turned round by the key, the inner ends of the key bolts sliding round with the key-ring. The bolt may be then locked or unlocked, and when the key is brought back to its entering point and withdrawn, the two rings are again fastened together by the outer ends of the key bolts, which are convergently pressed into the holes in the key-ring by the springs.

The other part of the invention relates to the adaptation of india-rubber springs for hauling up and keeping tight the rigging of ships.

[Printed, 10d. Drawing. See Mechanics' Magazine, vol. 50, pp. 306 and 324; Artizan, vol. 7, p. 208; Patent Journal, vol. 6, p. 254.]

A.D. 1849, May 8.—N° 12,604.

WILKES, Samuel.—This invention relating to the construction of locks, the casting of knobs for door locks, and to knob spindles, consists,—

1st. As regards knobs, in the mode of forming the core in one piece, making the top of the core box open to allow the ramming in of the sand, and the center or stem hollow to carry off the air, and making provision for attachment to the spindle.

2nd. The lock spindle which carries the knob is recessed on three or more sides instead of only two sides. These recesses or indentations receive the point of the screw which fastens the knob on the spindle, and by having an increased number the knob may be more nicely adjusted on the spindle end, so as to work up close to the lock without friction.

3rd. Introducing in the construction of locks "a shield so "arranged, that by double locking a lock inside, the shield will "be caused to cover the keyhole and prevent a key being "introduced from the front."

[Printed, 1s. 6d. Drawings. See Repertory of Arts, vol. 15 (*enlarged series*), p. 10; Mechanics' Magazine, vol. 51, p. 477; Patent Journal, vol. 8, p. 106.]

A.D. 1849, December 15.—Nº 12,898.

HARCOURT, Robert.—This invention relates to the construction of knobs, handles, and fastenings for doors, and drawers, and to fastenings for windows, sashes, curtain and other rods, and similar purposes, consisting of,—

1st. Knobs for doors; the socket which receives the spindle end and the outer rim of the neck of the knob are cast in one piece, and the neck to the spherical part of the knob (which is to be made in any convenient manner) is to be fixed thereto by soldering.

2nd. Spindles of door knobs are screwed or notched at the end to receive the threads of a nut or screw connected to the knob, whereby the length of spindle is made easy of adjustment, and as is usual, the knob is fixed by the lateral pressure of a small screw.

3rd. Fixing knobs and handles to doors and drawers. The end of the knob spindle or the eyes for the handle are screw threaded to receive a nut, which is furnished laterally with a wing through which there is a hole made to receive a wood screw, whereby, when the nut is screwed, it is made fast to the woodwork of the door or drawer.

4th. Fastenings for cupboards, oven, and other doors, consist of a knob with its spindle screw threaded to receive a one-wing nut which, when adjusted, is fixed in its place by a screw.

5th. Sash fasteners are made in two parts to be fixed respectively one to each sash. In one part there is a sliding bolt, near the end of which there is an inclining transverse groove; by means of a small screw that carries a knob, the bolt can be lowered and then slid forward under the edge of the other part, which has a corresponding incline groove. The bolt is then raised by the screw, and the sashes are fastened and drawn together by the inclines.

6th. Fastening stair, curtain, and other rods by the use of ferrules or short tubes attached to small plates whereby, by means of screws, they are fixed in position to woodwork or otherwise, and then the rods are passed through the tubes or ferrules. Longitudinal joints are made by cutting away a half portion of the end of each rod, and sliding over the two remaining portions a band ring.

7th. Knobs for drawers and cupboard doors are rivetted to their spindles, and

8th. Casement fastenings are fitted with a bolt that lies in a sliding case moved backwards and forwards by a screw, the end of which presses upon the bolt.

[Printed, 10*d.* Drawing. See Mechanics' Magazine, vol. 52, p. 498; Patent Journal, vol. 9, p. 155.]

A.D. 1850, January 12.—N° 12,927.

MILWAIN, JOHN.—This invention relating to apparatus adapted to the closing of doors, windows, and shutters, consists—

1st. " In the employment of a moveable strip of indian-rubber " or gutta percha, so applied to one part of the joint intended to " be secured as to press firmly upon the other part of the said " joint when the door, window, or shutter is closed, but capable " of receding therefrom when it shall be desired to open the said " door, window, or shutter."

2nd. "A peculiar mode of applying india-rubber or gutta " percha for the purpose of closing as aforesaid what are com- " monly called French windows, and other apparatus which open " and close after the manner of folding doors." A groove is formed throughout the length of the side framing or window jamb, and also between the meeting stiles respectively, to receive the strips of india-rubber, which become compressed and close the crevices when the windows are shut. Strips of india-rubber may be employed as springs for the purpose of closing doors and windows.

[Printed, 1*s.* 4*d.* Drawings. See London Journal (*Newton's*), vol. 38 (*conjoined series*), p. 110; Mechanics' Magazine, vol. 53, p. 55; Patent Journal, vol. 9, p. 177.]

A.D. 1850, July 22.—N° 13,184.

BRADFORD, JAMES.—This invention relates to the construction of locks and fastenings, consisting—

1st. In the addition to locks " of spring bolts or catches, which " take into the tumbler or into the bolt of the lock, and are dis- " posed in such positions that the tumbler or bolt cannot be " moved with a picker or other such instrument, until the spring " bolt or catch has been removed."

2nd. The fastening referred to is adapted to prevent the unloosening of broaches and other similar articles "from the dress " or person unless when desired by the wearer." It consists of two sliding pieces, which respectively move in sockets one on each side of the space ordinarily occupied by the catch which holds down the broach pin; in one piece there is a hole made to receive a pin which is fitted to project from the other piece, and this pin when the two sliding pieces come together interlocks with the hole, and prevents the broach pin rising or becoming loose.

[Printed, 6*d*. Drawing. See Mechanics' Magazine, vol. 54, pp. 78 and 89; Patent Journal, vol. 19, p. 208.]

A.D. 1851, March 4.—N° 13,542. (* *)

NEWTON, Alfred Vincent.—(*A communication from C. Goodyear.*)—" Improvements in the preparation of materials for the " production of a composition or compositions applicable to the " manufacture of buttons, knife and razor handles, inkstands, " door knobs, and other articles where hardness, strength, and " durability are required." First, treating caoutchouc or gutta percha, or caoutchouc and gutta percha combined, by mixing them with sulphur and heating them to a high temperature, or mixing them with sulphur and other substances and heating them. The other substances mentioned are magnesia, lime, or the carbonates or sulphates of magnesia or lime, or " calcined " French chalk or other magnesian earth," " gum lac or shellac," " rosin, oxides or salts of lead or zinc of all colors, and other " similar substances, both mineral and vegetable, may be added " in small quantities to either of the compounds." These compounds are mixed by a masticating machine, and rolled into sheets and manufactured into the articles desired. " The com- " pounds or compositions after heating or curing will attain a " hard and stiff character resembling tortoise shell, horne, bone, " ivory, or jet."

Second, applying these compositions when hardened by heating, or before heating by moulding, shaping, and afterwards heating, also uniting them to iron or other metals, &c., which will bear heat, and afterwards heating.

[Printed, 4*d*. No Drawings. See London Journal (*Newton's*), vol. 40 (*conjoined series*), p. 9; Mechanics' Magazine, vol. 55, p. 219; and Patent Journal, vol. 11, p. 276.]

A.D. 1851, April 15.—N° 13,595.

NEWELL, Robert.—This invention has for its object the construction of locks wherein the internal arrangement or combinaion of the movable parts may be, unlike ordinary locks, changed at pleasure in order to conform to any change made in the key, the ward bits of which are movable; and the lock receives a special adjustment in the act of locking according to the key employed, which is retained until unlocked by the same key, when the original state of the lock is restored. The lock contains a number of main slides or tumblers, and a series of secondary slides or tumblers, fitted and sliding on the guide stumps affixed to the bolt. Each slide has at its end a tongue, and these tongues slide between jaws with which the secondary slides are furnished. A cramp plate fitted over the secondary slides, when secured by a nut holds the latter in their places, the nut being turned by means of a secondary key which is applied at the back of the lock. The main key is fitted with movable bits or wards, which may be changed at pleasure, and when entered and turned in the keyhole, each bit lifts its particular slide, and the tongues on the slides operate on the secondary slides; the bolt is moved by a stationary bit on the key head so soon as a notch in a lever is clear of a pin or stump.

Describes another lock constructed upon the same principle, and having in addition to the other parts a detector tumbler and a revolving "circular curtain," which when it is turned by the key moves eccentric to the key pin, and raises an auxiliary slide, to operate the detector tumbler; these locks may have two or three series or sets of slides or tumblers, and all their keys are fitted with movable ward-bits.

[Printed, 1*s*. 2*d*. Drawings. See London Journal (*Newton's*), vol. 42 (*conjoined series*), p. 225; Mechanic's Magazine, vol. 55, p. 337.]

A.D. 1851, November 4.—Nº 13,802.

DISMORE, George.—This invention relates to the construction of locks fitted with tumblers or otherwise. The key is introduced into these locks through a rotating tube having an enlargement or boss, which is free to move on a projecting cylinder; the tube has fixed to it a spring, the bent end of which engages with a notch for the purpose of keeping "the parts in a correct position " for the introduction of the key, and in addition to these parts " there is a fixed plate . . . . which I prefer to be of steel, " through which there are two openings, the one for the key to " pass into the lock, and the other for it to pass out at," a stop regulating its proper range. The bolt is shot by means of a spring, and it is so arranged that the lock may be opened on one side by a key adapted in form to co-operate with the tumbler wards, and on the other side by a handle on the spindle, the bit of which so acts on a lever as to bring its face against the tail ends of the tumblers, and move them into position for permitting the return of the bolt.

Shows the arrangement of the parts of a large lock requiring a proportionately large key. "In order that the 'bit' end of the
" key, which can be separated from the stem, as shewn, is first
" introduced into the key-hole, the stem of the key is then de-
" tached from it leaving the 'bit' in the lock; the stem is
" then inserted into the key-hole, ... and by turning the
" boss thereby, the 'bit' of the key is carried round and caused
" to act upon the tumblers and bolt of the lock to lock it."

" The form of the 'bit' of the key, and consequently, the
" tumblers, wards, and such like parts, may be varied, and the
" key shown is simply for illustration. The convenience offered
" by thus having the 'bit' of the key separate from the stem will
" readily be understood, particularly in regard to large keys, as
" it admits of the 'bit' end being more conveniently carried
" about the person whilst the stem may be kept in any convenient
" place, the possession of the stem only of the key by any person
" giving no means of opening the lock."

[Printed, 1*s.* 2*d.* Drawings. See Repertory of Arts, vol. 19 (*enlarged series*), p. 340; Mechanics' Magazine, vol. 56, p. 399; Beavan's Reports, Reports, vol. 18, p. 538.]

A.D. 1851, November 6.—N° 13,806.

PARNELL, Michael Leopold.—This invention, which relates to detector and other locks constructed with tumblers, has for its object the prevention, by reason of the particular internal arrangements of its parts, of access to the tumblers by means of picklocks or false keys. To this end the face of the lock is fitted with a revolving cap, and the ward-bit of the key is made movable and capable of radial projection when it is inserted in the lock, by coming into contact with fixed eccentric curves. When the key is turned in the lock the revolving cap closes the keyhole. A "spring stop" is introduced to prevent any sticking of the tumblers in the event of pressure being thrown upon the bolt. This stop also acts as an additional tumbler. Modifications in the internal arrangements are described in respect to "outer " locks" as also for door locks opening on either side. In cabinet locks, instead of a cam and eccentric ward, an eccentric or cam ring is employed, or a plate with an eccentric or cam groove. The construction of the revolving cap may be varied, particularly for small locks.

[Printed, 10*d*. Drawing. See Mechanics' Magazine, vol. 56, pp. 399 and 419; also vol. 58, p. 145.]

A.D. 1851, November 13.—N° 13,807.

SINCLAIR, **William**.—This invention relating to the construction of locks consists of :—

1st. " Combining the action of two or more of the tumblers, " leaves, or sliders, in such manner as shall prevent their being " individually placed in the position requisite for the passage of " the locking pin, ring, or plate (as the case may be), through " the gate or way, or in such other position as the peculiar con- " struction of the lock to which the improvement is applied may " require, in order to free the bolt from the obstruction of the " tumblers, leaves, sliders, locking plate, or pin, or as shall, in " the event of one or more of the said tumblers, leaves, or sliders, " being wholly or in part advanced to the position before men- " tioned, cause the remaining combined tumblers, leaves, or " sliders to become locked, and may also be applied to the " securing any other portion of the lock ordinarily set in action " by the motion of the key. This . . . . is effected by the " application to the aforesaid tumblers, leaves, or sliders of " grooves, curves, or notches, having pins, catches, or detents, " in, on, or in connection with them, the position of the pins, " catches, or detents, coinciding with the grooves, curves, or " notches, only when the relative motion of the tumblers, leaves, " or sliders is such as would be generated by the legitimate action " of the key."

2nd. "The application of revolving rings, curtains, or guards " combined with escutcheons or wards, in such manner as shall " preclude the introduction of or increase the difficulty of operat- " ing with picking instruments."

3rd. " In the use of a zig-zag or serpentine gate or way for the " passage of the locking pin, and in the application of a com- " pound motion of the tumblers or leaves, in order to effect the

" passage of the said pin, so as to produce the result of two or " more lockings by one revolution of the key."

4th. "The combination of an index scale or dial with a " tumbler or leaved lock, by which arrangement the degree of " motion imparted to the tumblers may be varied to the permutations of a changeable key, or the lock may by means of " the dial and suitable arrangements connected therewith, be " disarranged (after having been locked) in such manner as shall " prevent the unlocking, even with the legitimate key without " the knowledge of the secret arrangement requisite for the time " being."

5th. "Dispensing in 'pad' or other similar locks with the " shackle, the eye bolt, or with both, and in the substituting " a plate on which the lock is placed, and to which plate or " to pieces passing through or attached thereto, the bolt is " caused to lock or become otherwise connected."

[Printed, 1*s*. 6*d*. Drawings. See Mechanics' Magazine, vol. 56, p. 414.]

A.D. 1851, November 22.—N° 13,824.

RESTELL, Thomas.—"Improvements in locks or fastenings."

[No Specification enrolled.]

A.D. 1851, December 8.—N° 13,852.

RESTELL, Thomas.—This invention relating to locks and other fastenings, has for its object perfect security combined with simplicity of construction and moderate cost. The security of the locks and the peculiarities in their manufacture consisting :—

1st. In constructing "the keyhole in such a manner that not " more than one instrument can be introduced into the lock " at one time; and further, that if any instrument other than " the proper key be introduced, and turned partly round, it " will meet with an obstruction as usual in all combination " locks, but cannot be withdrawn therefrom until all the internal " parts have been brought back into their natural position. " This will effectually prevent any person from feeling where all " the obstructions lie, and will consequently give him no opportunity of dealing with them. I effect this object by surrounding the spindle of the keyhole with a cylindrical curtain or " guard, combined with a circular plate or shield, these parts " being constructed in such a manner in relation to the internal

" parts as to effectually prevent the introduction of more than " one instrument at a time. The circular plate or shield is " secured to the top of the cylindrical curtain, so that when the " key or other instrument is introduced and turned round in " the keyhole, the circular plate or shield is carried round inside " the lock, and covers up the hole, and thereby prevents the " introduction of a second instrument."

2nd. "The employment of pins, studs, or projecting points " adapted either to the circular shield or other part of the lock, " whereby the key may be prevented from being turned in the " wrong direction."

3rd. The use in locks of a movable plate and a bit or pin, whereby the position of the latter may be so changed in relation to the notches in the tumblers, or vice versa, and also so changed in regard to the combined arrangement of the other parts of the lock, as to render the original key useless or incapable of opening it.

4th. "Constructing the bolt with a tooth, pin, or projecting " point at its lower edge . . . . which, by bearing against the " sides of the cylindrical shield, circular plate, or other suitable " part, will prevent the bolt from being shot until a suitable " notch, cavity, or opening made for the purpose in the said " cylindrical shield, circular plate, or other part is brought round " so that the tooth, pin, or projecting point on the bolt may enter " therein, and allow the bolt to be moved."

5th. The use of a movable plate and bridge piece or bracket for the purpose (as applied to a Bramah lock) of changing the relative position of certain of the parts.

6th. "Constructing the tumblers . . . . with an additional " notch at the end, into which a pin, secured to the bolt, will " enter, upon applying force or pressure thereto, and by thus " holding all the tumblers will prevent any of them from being " raised until the bolt is thrown back again."

7th. "The use of a protector tumbler . . . . which tumbler " is by means of a pin connected to the circular shield, kept " raised too high to allow the bolt to be shot, and cannot be " allowed to descend until the circular plate is moved round, and " the keyhole closed."

8th. "Constructing a mortice tumbler lock, which can be " opened by the key from either side, the keyhole being protected " with double shields."

9th. The method shewn and described . . . . of constructing "tumbler latches."

[Printed, 1*s*. Drawings. See London Journal (*Newton's*), vol. 41 (*conjoined series*), p. 161; Mechanics' Magazine, vol. 56, p. 499.]

A.D. 1852, February 23.—N° 13,985.

HOBBS, ALFRED CHARLES.—This invention, relating to the construction of locks, has for its object, amongst other things, means for preventing any person feeling, by applying pressure to the bolt, the position of the gating of the tumblers. This is effected by "applying a moveable stump to the bolt, which " 'stump,' when pressure is applied to the bolt, will be brought " into contact with the face of the tumbler, but, instead of binding the tumblers, and holding them fast, as is usually the case, " the stump, by being made moveable, will yield and leave all " the tumblers free, but yet holds the bolt securely, and prevents " it from being thrown back." Several other methods for effecting the same object are shown.

Another part of the invention consists in preventing all access to the internal parts of the lock whilst the key is operating upon the tumblers; this is effected by "a moveable curtain or revolving " chamber, whereby the keyhole is completely and effectually " closed, instead of being only partially so, as has hitherto been " the case, during the operation of the key upon the tumblers." The curtain or chamber revolves on a centre, and the key or simply the ward piece or bit, which is detached, is inserted in the keyhole and carried round to act upon the tumblers by the revolving curtain, which is turned by a knob or handle applied to its spindle, so that the key hole of the lock is completely closed by the solid part of the curtain, and all access to the lock prevented, the key ward-bit remaining in the lock until it is unlocked, when, if required, it is brought round to the keyhole, and either ejected by a small spring, or withdrawn by a screw on the key handle.

"In contradistinction, therefore, to ordinary safety locks, the " bolt is not shot, nor the lock unlocked by a key of ordinary " construction, but simply by means of a knob, handle, or other " instrument applied to the spindle, ... of the revolving " chamber or curtain, the internal parts of the lock upon which " its safety depends having been first brought into the proper

" positions by means of a key 'bit' or other instrument properly " constructed to suit the particular combination of the lock."

Describes a "flush bolt, portable, or camp desk lock," in which the bolt is made to descend when unlocked flush with the lock selvedge, and when locked it first rises vertically, and then moves horizontally, sliding under the link.

Describes also a link plate or cupboard lock. In this case the link enters the lock through apertures in the selvedge, and is interlocked by the bolt in the interior of the lock-case.

[Printed, 1*s.* Drawings. See Repertory of Arts, vol. 21 (*enlarged series*), p. 213; Mechanics' Magazine, vol. 57, p. 198.]

PATENT LAW AMENDMENT ACT, 1852.

1852.

A.D. 1852, October 1.—N° 13.

HAYWARD, EDWARD LAMBERT.—This invention, relating to lock spindles, has for its object a ready method for adjusting the length or distance that may be required for knobs or handles respectively on the spindle ends to be placed apart, in order to prevent looseness, or, if too close together, friction. Transversely through one end of the spindle there is drilled and tapped a close series of holes, into one of which according to the required distance between, the small screw through the neck, which holds the knob on one end of the spindle, is inserted; near to the other end, transversely through the spindle, there is a longitudinal slot, and into the spindle end there is a hole drilled and tapped to receive an adjusting screw, the point or end of which passes longitudinally up the spindle into the slot, and bears laterally upon the other small screw, which for the purpose of holding it on the spindle end is also screwed transversely through the neck of the other knob. By this means the required distance between the knobs may be adjusted to a nicety. Instead of the series of holes at one end, both ends of the spindle may be slotted and drilled and tapped to receive an adjusting screw respectively to bear upon the knob screws.

[Printed, 6*d*. Drawing.]

A.D. 1852, October 2.—N° 175.

CAVANAGH, MICHAEL.—This invention relating to the construction and adjustment of knobs or handles to lock spindles, so as to be able to adapt them to doors of any thickness, is described with reference to two modifications. The first consists of a spindle composed of three longitudinal parts, one central or "core" piece or wedge, and two side pieces, each of the latter carrying a projecting rib which, when the core piece is inserted between the side pieces, respectively engage in notches or ratchet teeth formed inside a hollow or socket, with which the knob for the opposite end of the spindle is provided. By this means, on removing the wedge piece or core, the side pieces close together, so as to withdraw the nib on each piece from the internal ratches in the knob shank, by which arrangement the spindle may be adjusted to any required length conformable to the thickness of the door, by causing the nibs to fall into different rack holes or notches.

[Printed, 8*d*. Drawings.]

A.D. 1852, October 4.—N° 210.

WEBB, HENRY, and FROYSELL, JOSEPH.—This invention consists "in adapting the well-known bayonet joint to securing " knobs to the spindle of door and other locks and latches. The " knob has cast or carries on its neck one or more projections " which take into a corresponding slot or slots made in a shield, " rose, or escutcheon affixed to the door or to the lock itself. " Or we make a corresponding slot or slots, as the case may be, " in the 'follow' of the lock, into which the neck of the knob, " with its projection or projections, works." This mode of securing handles or knobs to spindles is applicable also in cases where the knobs or handles are composed of material otherwise than all metal, such as wood, glass, porcelain, etc., which have generally a metal lining, on which the projections are formed.

[Printed, 6*d*. Drawing.]

A.D. 1852, October 19.—N° 438.

HARCOURT, Joseph, and HARCOURT, William.—(*Provisional protection only*.)—This invention relates to the "appli-
" cation of porcelain, glass, or earthenware, to articles in which
" or for which those materials have never heretofore been used."

Twenty-four different applications of the above substances to the manufacture, wholly or in part, of a variety of articles are enumerated; amongst these are named,—

Vases or ornaments for window rods. Certain descriptions of handles for carriage doors. Venetian blind turns. Buttons for pew and cupboard doors. Certain escutcheons. Knobs for gig aprons. Studs for carriage doors, and stops for the same. Carriage window slides. Blind string studs, etc.

[Printed, 4*d*. No Drawings.]

A.D. 1852, October 21.—N° 472.

ROSE, Joseph.—The object of this invention, relating to the construction of locks, is "the production of a lock which cannot
" be picked." It is said to consist of "improvements on
" Chubb's lock," and is described by the inventor as follows:—
" At the back of the tumblers I place strong springs, one spring
" for every tumbler. The pin upon which the back ends of the
" tumblers work is inserted into the short arm of a bell-crank
" lever, whose fulcrum is fitted to the frame of the back, imme-
" diately above the pin on which the back ends of the tumblers
" work; the long arm of the lever is prolonged parallel with
" the bolt, and terminates in a projecting piece corresponding
" with a slot made in the top of the bolt of the lock. On any
" attempt being made to force back the bolt the short arm of the
" bell-crank lever would be carried back, and the long arm with
" its projecting piece would be brought down, and would effec-
" tually prevent the bolt being pressed back by the projecting
" piece fitting into the slot or aperture made for its reception in
" the bolt. On pressure being withdrawn from the bolt, the
" springs would force back the tumblers, and with them the
" short arm of the lever, and consequently raise the projecting
" piece on its long arm out of the slot in the bolt, and thus
" leave it in a fit state to be opened by the proper key of the
" lock."

[Printed, 6*d*. Drawing.]

A.D. 1852, November 23.—N° 828.

PARNELL, Michael Leopold.—This invention relating to the construction of box staples and striking plates, has for its object the avoiding or reducing the concussion and noise occasioned whilst closing doors by the latch bolt not yielding readily when it strikes the metal plate. It consists in making a notch or gap "in the "front part of the box staple, or in the face of the door post to "which the striking plate is attached, to admit of the latch bolt "passing into the box staple or striking plate; the aperture being "covered when the door is either open or closed, either directly "by a swinging shield or end plate, or by a sliding or swinging "plate acted upon by a hanging lever." The invention is described and illustrated as variously applied to box staples and striking plates, that portion of the latter against which the latch bolt impinges being constructed with a hinge joint, in order that when struck by the latch bolt it may yield, and when the end of the bolt has passed be returned to position either by a spring, a swinging lever, or its own gravity.

[Printed, 6*d*. Drawing.]

A.D. 1852, December 23.—N° 1142.

COUCHMAN, John William.—(*Provisional protection only.*) —This invention relates to "safely fastening window sashes." Two kinds of fastenings are shown and described, each in parts attached respectively to the upper and lower sashes, or to the sill frame inside the room and the lower sash rail for the purpose of fastening the latter. One of the parts fixed to the sill contains a spiral spring, which admits of a catch piece on the bottom rail of the lower sash, pushing back a catch mounted on the top of the sill, the two catches then immediately engaging or closing with each other; and when required to be disengaged they are operated by a thumb piece.

The other fastening is adapted to the meeting rails of the two sashes. In order to unfasten the top sash, the bottom sash must be first raised about an inch, which raises a lever and causes the drawing back of a bolt; and in order to close and fasten the top sash, the bottom sash is first raised, and the top sash is then closed and the bottom sash shut, both are then securely fastened.

[Printed, 6*d*. Drawing.]

A.D. 1852, December 23.—N° 1145. (* *)

WESTLEY, William, and BAYLISS, Richard.—"An im-" proved fastener, applicable to the fastening of window sashes, " tables, and other similar purposes." Each of the two parts composing this fastener "consists of two plates joined together, " and situated in planes at right angles to one another." One part is screwed or otherwise fastened to the meeting bar of each sash; the inner face of the vertical side of each part is inclined, so that when the window is shut, the two inclined faces " engage " against one another, and draw the sashes together;" a tongue, jointed to the part on the lower sash and actuated by a spring is forced thereby under the edge of the plate on the upper sash, and the lower sash cannot be raised until the tongue is disengaged by pulling it forward; for this purpose it is provided with a thumb plate. A bolt having an inclined edge and actuated by a spring, may be substituted for the tongue. This fastener is applicable to such tables "as have tops supported by being jointed to a pillar, " and capable, when not in use, of being raised into a vertical " plane." One part is fixed to the table top, and the other to " the block to which the said top is fastened;" the inclined or wedge-shaped surfaces engage and secure the top firmly in its place, whilst the spring bolt fixes the two parts of the fastener.

[Printed, 8*d.* Drawings.]

1853.

A.D. 1853, January 21.—N° 149.

EDWARDS, Eliezer.—(*Provisional protection only.*)—This invention relating to "the construction of knobs, handles, and " other articles of glass, earthenware, and other vitreous and " semi-vitreous substances, and in attaching the same to doors, " drawers, and other articles, ... consists in making the " screws by which knobs, handles, &c., of glass, earthenware, " or other vitreous or semi-vitreous substances are attached to " doors, drawers, &c., in one piece with and of the same material " as that of which the said knobs, handles, &c., are made. The

" said knobs, handles, &c. are usually attached to doors, drawers, " &c. by a metallic screw attached in various ways to the said " knobs, handles, &c., the said screw being made to enter or pass " through the said doors, drawers, &c. By making the said " screws in one piece with the said knobs, handles, &c., a great " economy in the manufacture of the said knobs is effected; the " metallic screw, which in the case of knobs, handles, &c. of " glass is unsightly, is avoided, and in some cases, as in the " insulators of electric telegraphs, the efficiency is increased."

[Printed, 4*d*. No Drawings.]

A.D. 1853, January 21.—N° 156.

ANDREW, Matthew.—This invention relating to window fastenings, is more particularly adapted to windows with sliding sashes, and consists in the application to such windows of self-acting apparatus, which upon the closing of the window draws and effectually closes the two sashes together, so that they can neither shake nor admit draught, and wlll remain closed until released by hand. The "most simple and economical" arrangement of the apparatus is described as follows:—"One part or " sash of the window is furnished with an inclined plane or " projection, over which an inclined loop or staple falls upon the " closing of the window, the action of these two inclined planes " bringing the two sashes of the window into close contact. The " staple is provided with a small spring bolt that shoots into a catch " or notch formed upon or in the inclined projection, thus se- " curing the two sashes until the said bolt is withdrawn by hand, " or (if preferred) the spring bolt may be attached to the inclined " projection, and the catch or notch be in or upon the staple. " This is all the apparatus that is necessary, provided that the " sashes have no transverse sash bars or other similar transverse " projection. Where the reverse is the case it is necessary that " the projecting staple and its appendages should be mounted " upon slides, being so constructed and acted upon by a spring " as to slide back out of the way upon passing any of these said " sash bars or projections, but return to its original position, " immediately after having passed the same."

Three modified arrangements of the apparatus are described and illustrated.

[Printed, 8*d*. Drawing.]

A.D. 1853, January 21.—N° 160.

CHUBB, John, and GOATER, John.—This invention relates to the construction of locks with detectors, and to latches or locks with lifting bolts.

As regards locks, it consists in making the sliding bolt of a lock in two parts, one part hinged to or moving on the other, the two parts having a spring between which has a tendency to keep them correctly together. "The key only acts on the movable
" part of the bolt, and any pressure put on the bolt with a view
" to act on the tumblers separately will be interfered with by the
" movable part of the bolt, which rises so as to press against the
" stump. The tumblers are provided with inclined projections,
" which acting against a stud on the moveable part of the bolt,
" causes it to rise when the bolt is shot, and any pressure applied
" tending to force the bolt back is resisted by the stump till all
" the tumblers are lifted to their correct positions by a true key.
" The lock is provided with a screen to the keyhole, and detectors
" to the tumblers."

Regarding latches with lifting bolts, a false bit is affixed to the screen which, when the latter is turned, acts on the tumblers but not correctly, the true key only when the screen is turned thereby, having the power to bring the tumblers into correct position for opening. Should any attempt be made to pick a latch-lock " of
" this description by pressing the latch against its catch (fixed
" to the door post), when attempting to raise the parts composing
" the latch by means of a pick or instrument, the false bit will
" prevent the parts of the latch being got at, and the pressure
" prevents the bit rotating."

[Printed, 1s. Drawings.]

A.D. 1853, January 29.—N° 228.

WILSON, Thomas Hood.—(*Provisional protection only.*)—This invention for " bolting carriage gates, doors, etc. is described as follows :—

"A case is fixed to a gate or door. A rod rises up or down
" the case. On the bottom of the rod a wheel is fixed, and round
" the rod or bolt springs are entwined to drive the wheel and rod
" or bolt out of the case, and which rod or bolt will remain out,
" and by the motion of the gate will run on the ground or floor
" until the gate or door is closed, when the wheel and rod or bolt

" will sink into a hole in the mortice plate which is fixed in the
" ground or floor, and will drive up an iron stop, which is placed
" on the outside of the gate, and which will prevent the gate
" from going beyond its proper place. The handle to open the
" bolt is fixed on the rod, and will turn round in a groove cut in
" the case to keep the bolt up when required. These bolts are
" made double, if required, by having two rods and wheels
" working in one case, which is opened in the middle by two
" handles."

[Printed, 6d. Drawing.]

A.D. 1853, January 29.—N° 229. (* *)

WHISHAW, Francis.—" An improved lock or system of locks."

This invention consists in locking the locks of doors, &c., by means of electro-magnetism. An electro-magnet on the jamb frame of a door, on being excited, becomes attached to a soft iron plate let flush into the inside of the door.

The bolt of an ordinary lock, or an ordinary bolt, may be used as the keeper plate; in this case the bolt will be unable to be withdrawn (having been shot forward) until the current ceases.

[Printed, 4d. No Drawings.]

A.D. 1853, February 5.—N° 320.

WHITEHOUSE, John, senior, and WHITEHOUSE, John, the younger.—This invention relates to the manufacture by compression of knob handles, from dry pulverized earthy substances, instead of using and moulding such substances in a plastic state, the article when produced by the dry process being, it is stated, superior, much stronger, and more endurable; the invention is also applicable to the manufacture of other articles of porcelain and earthenware, otherwise than of uniform thickness. "The
" improved dies or tools which we use are so arranged and con-
" structed that the parts of the die required to make the thinnest
" portion of the article shall either recede from or descend below
" the other parts of the surface of the die, according to whether
" a raised or sunken surface is required, by which means any
" additional quantity of powder can be supplied, and the hard-
" ness of the article made uniform throughout, as a nearly
" uniform pressure can be applied to all parts of the article. In
" some cases, as for articles of peculiar form, such as knobs, the

" dies must be made in parts or segments, and by the employ-
" ment of such dies or moulds we are enabled to make caps,
" basons, pipes, handles, knobs, and other articles of earthenware
" or porcelain, which it has hitherto been impossible to make by
" the dry process. The advantage resulting from the use of such
" divided or segmental dies is, that when the article has been
" made therein by compression the several parts of the die can
" be taken asunder, and the compressed article removed there-
" from with difficulty."

In the process of manufacture pieces of metal, plates, screws, pins, &c. are introduced or adapted to the manufactured article, and the pressure is applied by means of pistons operated by hand, a fly-press or otherwise.

[Printed, 1s. Drawings.]

A.D. 1853, February 11.—Nº 367.

CHOPPIN, William.—This invention is adapted to locks constructed with tumblers, and has for its object :—

1st. The means of detecting tampering by false keys with a single shot lock, or locks in which the key only makes one revolution ; this consists of a peculiar lever, termed a " double paul " and spring, combined with a circular plate, a portion of the periphery of which is serrated or notched like the teeth of a saw. If a key be introduced, it must make a complete revolution before it can be withdrawn, as the plate and pawl prevent its being turned back, so that any key not capable of making a revolution will be detained. A modification of this part of the invention is shown and described.

2nd. Relates to that class of locks which require the key to make two or more revolutions or shots before the bolt is completely projected, or they are what is termed double locked, the object being to prevent a key which has only made one or a part of the shots in one direction, from turning back until the whole of the shots of which the lock is capable be made. A stop piece or stump is affixed to the back plate of the lock, and the tumblers have corresponding openings. At the first revolution of the key for double-locking the tumblers which are placed in a box attached to the bolt are lifted and the bolt carried forward one shot. At the next revolution the tumblers receive a higher lift from a separate part of the ward bit of the key, and the stop piece when they descend engages in the next opening. In locking and unlocking both revolutions of the key must be made before the action can be reversed, otherwise a double pawl lever will engage with notched shoulders in the bolt and prevent it. Instead of making the tumblers move in a box, it is proposed to mount one end of them on a pin fixed to the bolt, and cause the key to operate upon them at the second shot only.

3rd. Employing two locks attached to one plate to act conjointly, the object being "to prevent a key from opening one lock " unless the other has been unlocked, and also to cover the key " hole of one lock while the other remains locked." A modification of this part of the invention is also described.

[Printed, 1s. Drawings.]

A.D. 1853, April 2.—N° 791.

ROSENKILDE, Christopher Garman.—By the use of this invention, which relates to window sash fastenings, it is stated that the weights, lines, and pulleys ordinarily employed for raising and balancing the sashes of windows and the fastenings employed for securing the same may be dispensed with. It "consists of " a spring which is fitted into and fixed at one end in a recess " made in the edge of the style of the sash, or in the window " frame against which the sash slides; the free end of the spring " is furnished with a projecting piece or knob, and takes into " a notch formed in the window frame or in the style of the sash, " by which the sash is immoveably fixed until the projecting " piece is pressed or lifted out of the notch, when the sash may " be moved up or down as may be required."

It is stated that instead of the spring fastening being fixed to the window frame, the arrangement may be reversed by attaching it to the sash, and making the notches in the frame. The invention is shown as applied to the lower sash only, but if the upper sash is required to open, a similar spring may be attached to it.

[Printed, 6d. Drawing.]

A.D. 1853, April 20.—N° 953.

McEVOY, Henry.—This invention relates to the construction and manufacture of door bolts. It consists—

1st. "In strengthening the plates of door bolts by slightly " raising them so as to form a rim around them; and at the same " time, and by the same means (namely, by stamping,) I sink the " metal around the screw holes so as to form a countersink for

" the heads of the screws that may be used in securing the bolt " to a door when in use."

2nd. " In forming a spring or springs in the bolt place for " holding the bolt in any desired position.

3rd. " In forming the stops for regulating the throw of the bolt " out of the bolt plate.

4th. " In forming stops for retaining the bolt in or out, as it may " be desired, the said stops being formed out of the bolt plate.

5th. " In holding the bolt and plate together by means of clips " or ears, such clips or ears being passed through suitable open-" ings from the back of the plate, cliping the bolt in front, and " which clips or ears may be further secured to the bolt plate by " the screws used in securing the bolt to the place where it may " be used.

6th. " In forming bolt plates . . . . by means of moulding and " casting them of any suitable metal; but such bolt plates so " made will require to have the springs applied to them, instead " of being made out of the same.

7th. " In the form of the iron which I propose using for the bolt " bars, and which form or forms I show in the drawing annexed, " represented in six sections.

8th. " In covering the front part or face of the bolt with thin " sheet brass.

[Printed, 10*d*. Drawings.]

A.D. 1853, May 3.—N° 1074.

GOBLE, George Frederic.—This invention relates to the construction of locks, and consists :—

1st. Of a door lock fitted with a series of slides which move transverse to the bolt; in each slide there is a long slotted opening for the purpose of receiving two pins, one near each end, which pins keep the slides in position. These slides act the part of tumblers, they are retained by springs and are brought into position by the key. For locks with handles, it is preferred to act on the inner bolt by a toothed sector and rack.

2nd. Another form of door lock with ten slides or bolts; the key, which is of considerable breadth, is fitted with a series of ten studs, that are projected by springs. The interior arrangements of these locks may be variously constructed and "modified in " regard to the number, form, and size of the levers or slides, " springs, bolts, teeth, and the configuration of the keys."

In constructing padlocks, the shackle may have circular motion in a round case; and the bolts may act in corresponding grooves cut in the shackle, and have either studs or holes to be actuated either with or without a key.

[Printed, 8*d*. Drawings.]

A.D. 1853, May 23.—N° 1266.

SIMSON, William.—The object of this invention which relates to the construction of locks, is to increase the security by adapting and applying to them,—

1st. A double set of bolts with springs and wards, springs and tumblers, or with all combined, in place of the single set in ordinary use, the main horizontal bolt of the lock being retained after it is shot out of the lock case by the extra bolt, which acts in a vertical direction. The full advantage is to be derived by using tumblers and their accessories to each bolt, although in many cases it may be convenient to dispense with the horizontal tumblers the additional security being obtained from fitting tumblers to the vertical bolt, which is effectually guarded from access or pressure, no part of it being at any time exposed. The two bolts may be combined to act without tumblers, the vertical or retaining bolt may be raised and the main locking bolt withdrawn by one turn of the key which in locking first shoots the main bolt, and then brings down the vertical bolt.

2nd. Adapting and applying to locks fitted with the double set of bolts and auxiliars, a solid metal block or protector, which is contrived to fill up the cavity between the front and back plates of blocks, turning with the key and actuating a part of the tumblers and bolts. In addition to the advantage of filling up the internal spaces and partly closing in the gates of the tumblers, the protector is incapable of motion excepting simultaneously with the bolts; the protector is fitted with a tongue which in opening is intended to follow, and in locking to precede the entrance of the key into the recesses of the bolt. The key combines two parts, one operates the protector and the other the main bolt.

[Printed, 6*d*. Drawing.]

A.D. 1853, May 26.—N° 1301.

NURSE, John.—(*Provisional protection only.*)—This invention relating to apparatus for fastening and unfastening doors, is especially applicable to the doors of carriages. It consists of a lock, the bolt of which by means of levers or a system of cords and pulleys, may be withdrawn or shot by a person operating at a distance, as in the case of a coachman, who by its aid may open the carriage door without alighting from his seat. The lock instead of being adapted to the door, is fitted to the door post, it may however be fitted to the door. The apparatus is to act by pressing or drawing back the bolt of the lock by means of cords passing over pulleys, or by connected levers, bringing a handle affixed at one end of the apparatus, into communication at the other end with the bolt of the lock.

[Printed, 4*d*. No Drawings.]

A.D. 1853, May 27.—Nº 1310.

BENTLEY, William Henry.—This invention relates to the construction of locks and keys, and is partly applicable to window sashes and doors.

It is described as follows:—"I make the bolt of my lock a " series of tubes arranged concentrically around a bolt, which " serves as an ordinary spring bolt for securing the door when " not required to be locked, and in connection with these tubes I " employ a screw, which at the time that the tubes are shot " forward by the key, is forced backward, and passes into a hole " in the door post to which the door is hinged. The whole series " of tubes constituting the bolt may be shot forward at once, or a " portion only of them, or they may be shot consecutively, and " all to the same extent, or each to a different extent, by making " them with racks, having small toothed wheels gearing into " them, and forming the key with bits of different lengths, which " work the wheels so as to cause the wheels to take into the racks " in succession, whilst the tumblers are raised to allow the tubes " to be shot forward by other bits, which also come into opera- " tion in succession. To the inner end of the tubes, or to one " of them, or to the centre bolt, I attach a cross piece carrying " two pauls, which take into a ring of teeth attached to the face " of a ratchet wheel which has its axis projecting from the interior " of the front plate of the lock. By this means the ratchet wheel " is moved when the bolt or part to which the pauls are attached " is moved in either direction. The teeth on the edge of the " ratchet wheel work a lever vibrating on a centre, and carrying " at the opposite end a hammer, which strikes a bell and gives a

" signal whenever the bolt is moved. On the inner face of the " ratchet wheel, which works against the interior of the front " plate of the lock, I mark a series of numbers, and cut an " aperture in the lock plate through which these numbers can be " seen, and any attempt to shoot back the bolt or tubes will be " indicated by the number shewn on the ratchet wheel through " the aperture in the lock plate; by the same means also the " number of times the lock has been locked and unlocked will be " indicated. The aperture or eyehole is closed with a glass." In some cases the the keyhole is made through the handle of the lock and covered with a spring cap, and the bits which are capable of sliding radially, may be moved out by a screw after the key is introduced.

To prevent rusting, the interior of locks is galvanised or tinned, and the bolts and front plates are made of case-hardened steel.

For the purpose of raising window sashes, the arrangement of tubes with racks and pinions may be employed, and to fix box staples they are screwed on to screws projecting from the door post.

[Printed, 8*d*. Drawing.]

A.D. 1853, July 5.—N° 1600.

TRIPE, DECIMUS JULIUS.—This invention relates to the construction of locks for general use, including safes. The general mechanism of these locks may be of the kind known to locksmiths, to which according to the invention is added levers and catches that act as detectors or "pick-preventives." These lever catches, employed for preventing pressure on the tumblers should force be applied to the bolt, are acted upon by the tumbler slide, and moving at one end on a fixed center, are free at the other end to catch into a notch or notches in the bolt. The respective forms and position of these lever catches, and the mechanism connected therewith requires modification, so as to be capable of acting conjointly with the particular construction and description of lock to which they are applied. The drawing shows the application of the invention to eight different kinds or parts of locks, and reference is made to each.

Describes a modification of a hollow lever catch which contains a portion of mercury that gravitates when the lever is tilted to the lowest end.

[Printed, 8*d*. Drawing.]

A.D. 1853, July 6.—N° 1617.

NEWTON, WILLIAM EDWARD.—(*A communication.*)—The object of this invention relating to the construction of locks and latches, "is to produce a moderately safe lock that it would be " difficult to pick or open with false keys, but which, owing to its " extreme simplicity, may be made at so reasonable a cost as to " supersede the necessity of using the commoner sort of locks " or fastenings of the ordinary construction, and which can be " opened with the greatest ease without the proper key. In " the improved locks or fastenings the bolt is held by another " bolt or stud, and cannot be shot either way until such additional bolt or stud is removed or turned back out of the " way. This may be done either by means of a separate instrument or by the proper key which is employed to shoot back " the principal bolt. The lever or arm whereby the bolt is to " be moved rests on a spring, which must be pressed down by " the key before the latter can act upon the different parts of the " lock to actuate the same. The object may be also effected by " means of a detached drop catch, stud, or lever, which can " only be acted upon from one side, as, for instance, from the " inside of a room, so as to render it necessary to lift up the " drop catch before even the right key can turn or shoot the " bolt. In some cases I employ two principal bolts, one of which " must be shot back before the other can be moved; these two " bolts may be actuated either by the same or different keys or " instruments, and the parts may also, if required, be so combined " as to be moved by the same instrument, and without removing " the latter from the lock and re-introducing it."

A variety of locks constructed according to the invention and adapted in form and make to different purposes are described and illustrated. These consist of two modifications of locks or spring latches; a three bolt drawer lock; a lock with spring latch adapted for folding doors; a lock the bolt of which is shot by half a turn of the key; a cupboard lock; a lock requiring a turn and a half of the key to open it or close it, and a key suited thereto; padlocks, keys, and details.

[Printed, 1*s.* 2*d.* Drawings.]

A.D. 1853, July 9.—N° 1644.

SKINNER, WILLIAM, junior.—(*Provisional protection only.*)—The object of this invention, which relates to fastenings for window sashes, to shutters and apparatus, is the so arranging the fastenings of sash windows that greater security is afforded against external attack, and the fastening and adjusting made more easy. "Each side of the window frame in the interior of the house is "formed with a ratchet toothed rack, and a corresponding spring "detent is fitted to each side of the traversing sash. In this "way the sash is held in position by the engagement of the "detents in the ratchet teeth until each detent is disengaged by "hand from the interior. To do this the detents have each a "wire or connecting link suitably arranged in the house, so that "the two connections must be simultaneously operated upon when "the sash is to be raised or lowered, or the lowering may be accomplished without this action although it is impossible to raise "or open the sash without it. . . . . . . To furnish a still better "means of security the sashes may be locked by any simple "locking contrivance which shall require a key for its opening "and shutting, and this key being kept hung up at a convenient "place in the house." "The shutters are made to act also as "Venetian blinds. Each lath is of thin iron or other material, "suspended on end spindles which enter side grooves in the "fixed window framing, and the whole set is combined in a chain "just like the common Venetian blind."

[Printed, 4*d*. No Drawings.]

A.D. 1853, July 29.—N° 1777.

NEWTON, William Edward.—(*A communication.*)—This invention relates to the process of depositing or coating metallic substances and articles with other or finer metals and metallic alloys, with a view to their preservation, better appearance, or ornamentation. Preparatory to the process, the metallic substances are subjected to the effect of metallic solutions, consisting principally of double salts of the metals and an alkaline base. The appearance of brass is obtained from an alloy of zinc and copper; bronze from an alloy of copper and tin; and an alloy containing proportions of copper, zinc, and tin is also employed. The metallic solutions are to be mixed in certain proportions, which are fully explained and regulated according to the particular color required, and the alloys may be deposited either with or without the assistance of galvanic or electric agency.

Describes the mode of coating with or depositing an alloy of zinc and manganese on metallic or other substances, and also the process of producing the alloy, which is to be applied by galvanic agency. Also describes the metals and alloys employed for obtaining by successive processes, combined layers of considerable thickness.

Amongst the various articles and uses enumerated to which the invention may be applied are locks, latches, hinges, knobs, wire, nails, and fastenings generally.

[Printed, 4*d.* No Drawings.]

A.D. 1853, August 11.—N° 1866.

RUSHBURY, JOHN.—(*Provisional protection only.*)—This invention relates to the construction of a lock containing tumblers, which instead of being kept in their places by springs of the ordinary kind, are regulated by a combination of cranked levers composed of brass, which is "sufficiently elastic for the purpose." The novelty otherwise consists in the use of a plate of a particular form, at the back of which there are two pins, which engage in slits in the tumblers when the bolt is moved either way, and also prevents the lifting of the tumblers when the keyhole is open. The plate is moved by the key when the latter is turned, and excepting the cylindrical part the keyhole is covered by a tongue, the pins being free from the tumblers. When the bolt has been moved, the tumblers are again locked by one of the pins, and the keyhole is exposed. If by means of a false key or otherwise one of the tumblers be lifted too high, the end of one of the levers by engaging in a slit in the bolt prevents its movement.

[Printed, 6*d.* Drawing.]

A.D. 1853, August 18.—N° 1932.

PIGÉ, ALEXIS.—(*A communication.*)—This invention relates to the construction of locks, and to the particular form and adaptation of their keys. The ward-bit or lever of the key is movable and so contrived, that it will fold back on a fixed center and lie in the barrel or stem of the key, which is made hollow throughout its whole length to receive a long wire pin, that passes up the stem and projects into the handle or ring of the key, which is jointed to the end of the stem, so that it may turn down like a box or drawer handle. The keyhole is merely a round opening in a tubular socket which is fixed projecting from the front plate of the lock, and in a direct line therewith at the back of the lock there is fixed another tubular socket, containing a helical spring and a loose plug, which is moved forward by the spring so as to close the front socket or keyhole when the key is withdrawn. The bolt of the lock, tumblers, and springs are of the ordinary description, and inside the lock concentric with the keyhole, there is a circular chamber made to receive and permit the proper action of the key, the movable lever or ward-bit being fashioned to correspond with the wards and tumblers of the lock according to its construction. When the key is inserted through the keyhole socket into the circular chamber, the ward-bit is unfolded or projected laterally by taking the pressure of the thumb from the end of the wire rod, which for the purpose is furnished with a small helical wire spring, and then the key is allowed to be forced back by the plug into a position for acting upon the bolt, either through the intervention of the tumblers or otherwise.

[Printed, 6*d*. Drawing.]

A.D. 1853, September 9.—N° 2076.

PARNELL, Michael Leopold.—The object of this invention which relates to the construction of locks, is to frustrate or resist pressure exerted endwise on the bolt in the direction of its motion, and to prevent the access into locks of several picks at one time, introduced for the purpose of acting upon the levers or tumblers. To this end,—

1st. Is fitted to the lock an improved detector spring stop, "in " which the tumblers or levers turn upon an axis situated between " the two ends of the levers, and have two inclined planes formed " upon their inner ends, upon which inclines the springs act."

2nd. An end pressure stop, which turns upon (preferably the tumbler axis or) an axis fixed to the case of the lock, and is kept down by the levers.

3rd. An end pressure stop with one or two arms; is capable of turning on a pin placed immediately above the tumblers, and is raised by one of them.

4th. Forming an end pressure stop "by cutting a false notch " through all the tumblers immediately behind the stump so as " to prevent the bolt" when shot "receding beyond the depth " of the false notch, the bolt being retained in its proper position " by a yielding stop."

5th. Adapting to locks a "curtain, having a socket formed " upon it, which turns upon a cylindrical ward, and descends to

" the bottom of the lock, the ward being concentric with the drill " pin, or (in the case of locks which lock from both sides) with the " hole which receives the key pin."

[Printed, 8*d.* Drawings.]

A.D. 1853, September 9.—N° 2077.

MARTIN, JAMES.—(*Provisional protection only.*)—This invention relating to the construction of locks, is described as follows:—

"On the back of the keyhole plate I fix a pair of doors on " hinges, which on the insertion of the key are opened, so as to " admit it into the working parts of the lock. The first motion " of the key, or the first turn of any instrument inserted for the " purpose of picking the lock, causes a lever and wedge bolt first " to free a wedge which held the doors open, and then to keep " them firmly closed. No key or instrument, except that bearing " the exact wards of the proper key, could then turn the bolt of " the lock, nor could any but the proper key free itself by acting " upon the locking wedge, which would then release the doors, " and allow the key to be withdrawn."

[Printed, 4*d.* No Drawings.]

A.D. 1853, September 29.—N° 2229.

PHILLIPS, JOHN.—This invention relates to bending or shaping pieces of thin sheet metal into various forms suited for bolt cases, door handles, and similar uses.

Two modes for effecting the object of the invention are described with reference to the drawing, one consisting of a combination of three movable moulding dies and a mandril, and the others of rollers acting conjointly in sets. The dies are operated by screw pressure, two of them in conjunction with the mandril forming the cylindrical part of the bolt case, and the third die pressing transversely upon the sides of the others, forms the base by pressing the two ends up the plate relatively to one level plane. When ornamental articles are to be produced, the dies and mandril or the rollers employed require to be correspondingly fluted or otherwise shaped.

[Printed, 8*d.* Drawings.]

A.D. 1853, November 7.—N° 2587.

NEWTON, ALFRED VINCENT.—(*A communication.*)—This invention relates to the construction of locks adapted for safes, vaults, and such like purposes, and to the combination of cast and wrought iron, in the construction of safes and vaults.

1st. The key of these locks is made in two parts; the ward-bit acts upon the tumblers, being capable of separating from the key shank, and when inserted in the keyhole, it becomes detached and is moved away by a carrier to operate the tumblers, which are not situated contiguous to the keyhole; after having operated, the key ward-bit is returned and united to the key shank, which internally is provided with a pin. The fence is arranged to be set to any nice position, which the tumblers are made to assume by the key, by means of a holding clamp which secures the fence before and after the tumblers leave it, as they must have the same position relatively before they can again pass on to it. A protective tumbler is fitted to the lock for the purpose of protecting the key tumblers against undue strain, and a lever whereon all the tumblers rest, and by which they are lifted when the key is either brought under or taken from under them, is employed to avoid all frictional wear. The bolts are cylindrical and connected with the carriage of the lock by collars, so that they are free to turn and therefore could not be operated upon by a saw.

2nd. Relates to the construction of the walls, sides, and doors of burglar-proof vaults, and safes, which are made of iron cast on to wrought-iron wirework, or on to wrought-iron perforated plates, the surface being afterwards sufficiently chilled to resist the action of cutting or drilling tools.

The doors are secured by sliding bolts, which are operated by levers which are fixed by the main bolt of the lock, the latter being out of reach inside the door.

[Printed, 1*s*. Drawings.]

A.D. 1853, November 8.—N° 2593.

HAYWARD, Edward Lambert.—(*Provisional protection only.*)—This invention, relating to roses for door and other locks, " is applicable to those classes of locks which have knobs and " roses, and consists of improvements in the construction of the " roses. For this purpose each rose is constructed of two parts, " one of which is fixed to the door or surface where the knob " comes by screws, such part being made to project round the " opening where the spindle passes, and against and into this " projection the nob passes. The nob is fixed to the spindle of

" the lock. The other part of the rose is intended as a cover to " the part which is fixed, and may be ornamented and made of " any suitable material. This outer part of the rose is made " to fit on to the projecting part of the other or fixed portion of " the rose, and the two parts of the rose are secured together by " means of a spring so fixed and introduced into a groove in " one as to project beyond the groove; and when the two parts " of a rose come together the projecting spring enters into a " groove in the other part of the rose, and holds the two parts " together."

[Printed, 4d. No Drawings.]

A.D. 1853, November 21.—N° 2698.

TUCKER, Walter Henry, and REEVES, William Rashleigh.—This invention relates to the construction of locks, consisting in,—

1st. "The application to locks of a movable box or enclosure " surrounding the combination parts and cutting off all communication with them from the external keyhole during the " the time the opposing piece is or can be in contact with them, " and part of which box by passing behind the bolt when it is " locked out shall preserve the lock from injury by force applied " against the bolt."

2nd. "The application to locks of an auxiliary key bit (acted " upon by the key) serving to operate upon the movable box so " as to complete the closing up of communication with the " combination parts when the opposing piece is or can be in " contact with them, and which auxiliary bit may be used to " propel the bolt."

3rd. "The application to locks of a pipe-shaped metallic spring " (fixed to the back of the surface plate of such locks around the " keyhole) for the purpose of keeping the auxiliary bit steady to " its work."

4th. The so constructing "such portions of the combination " parts of locks as the key bit impinges upon . . . . that no " indication can be obtained, either by the wear of such parts or " by smoking them through the keyhole, of the length of action " of the key upon them, so as by such means to make false keys " to such locks . . . . The combination parts (which are flat " pieces of metal . . . . ranged one over the other with their

" plane surfaces parallel with the lock plates), have cut in each " at its outer edge a notch, upon the side of which the key bit " impinges, carrying each to a distance according with the length " of the key bit acting upon it. And our improvement consists " in so shaping that notch that it shall be so much larger behind " than at the opening where the key bit enters, that the bit can " impinge only on the outer edge of the opening, so that by the " step of the key-bit acting upon it either long or short, the im- " pression it makes on the smoked edge of the notch shall in each " case be the same."

Spring locks having their cases or plates made of rolled or drawn metal instead of cast " are made with a spring bolt stump, " which yields so as to allow the bolt to recede on closing the " lock, but is so arranged that the bolt cannot be drawn back " from the keyhole without the true key."

In the construction of padlocks, the combination stump is attached to the tail of the shackle, thereby rendering the use of a bolt unnecessary.

[Printed, 6*d*. No Drawings.]

A.D. 1853, December 10.—N° 2879.

DU BOST, Hippolyte Laurent.—(*Letters Patent void for want of Final Specification.*)—This invention relates to the construction of locks and keys.

"There are in the key and in the locks notched slides, in " grooves concomitant or corresponding in such a manner that " the slides of the key fixed more or less high, push and lower " more or less those of the lock."

" This system, shewing only the keyhole, may be used for all " sorts of locks, almost without modification, except the nature " and strength of the metal."

[Printed, 4*d*. No Drawing.]

A.D. 1853, December 15.—N° 2907.

PUGH, Thomas, and KENNARD, William. — (*Provisional protection only.*)—This invention, relating to spindles for locks and latches, " consists in constructing the spindles of locks and " latches of two or more bars or pieces, and also in adapting " spindles formed of two or more bars or pieces, so that they may

" be slided upon or against each other for adjustment of the " handles to the different sizes or thicknesses of doors."

The invention includes the fastening or securing upon spindles so constructed handles any required distance apart.

[Printed, 4*d*. No Drawings.]

A.D. 1853, December 22.—Nº 2980.

GIBBONS, James, the younger.—This invention, relating to the construction of locks having primary and secondary levers, and to latches, consists, as regards locks, in bringing first into action one portion of the levers, guards, slides, or parts, (the peculiar construction and action of which it is stated form the main feature of this part of the invention together with those other parts which form the security of locks) "before the other portion " of the securing or holding parts, as well as in such an arrange- " ment of the other securing parts that unless every one of them " corresponds with the true and legitimate key at the time the " bolt is passed through that part of its motion allowed by that " portion of the levers, guards, or slides first brought into action, " the lock cannot be opened, and the plan of picking locks by " applying pressure against the bolt (whilst the levers, guards, or " slides are moved or lifted) is entirely prevented."

The latches of bolts are worked by means of a tail piece attached thereto or to any part of the guide, and a double lever or follow is used in combination.

Several locks are described and illustrated. These include three modifications of lever locks and a Barron's lock, one of the lever locks having detector movements.

[Printed, 1*s*. Drawings.]

A.D. 1853, December 28.—Nº 3013.

PHILLIPS, Thomas, and PHILLIPS, Samuel.—(*Provisional protection only.*)—This invention, relating to window shutters, is also applicable as affording means of additional security to doors and similar openings.

It consists in constructing shutters for windows, doors, etc. of a series of laths placed vertically, and composed of either wood or metal. When made of metal, these laths are hinged together at the sides, either by turning the edges of the laths and inserting to act as hinge pins long wire or metal rods, or tubes are so fastened to the edges of the laths, as to come intermediate when the laths are brought together, and so that a vertical metal rod or hinge pin can be passed through them, the edges of the laths slightly overlapping. When wooden laths are used in the construction of these shutters, a series of common hinges turning on one long central hinge pin may be employed.

[Printed, 4*d*. No Drawings.]

1854.

A.D. 1854, February 1.—N° 256.

DANIEL, ALFRED.—This invention, relating to the construction of locks for doors, and handles for the same, is applicable to locks varying in form or size, containing one, two, or more bolts.

It consists, as regard locks, "in applying to one-bolted locks "a slide, on which the follow acts, and on which is fixed the "tumbler and tumbler spring, connecting the slide with a bolt "answering as lock & latch bolt, and which bolt will act by "being placed under, upon, by the side, or end to end with the "slide, or in other positions, as different forms of locks may "require it to be placed. By means of this slide the double "action of the latch is obtained, that is, admits of the handles "turning either way, and allows the same bolt to be locked out "with the key, dispensing with the use of a second lever or "tumbler, and other complicated parts hitherto applied to attain "the double action in one-bolted locks."

Cases for mortice locks, containing one, two, or more bolts, are cast either entirely of cast iron or in part, in which latter case, the fore-end, made of wrought iron, is laid in the mould before the molten metal is poured in. The cap sides of rim, and of stock-lock cases are also made of iron cast with suitable bearings for the bolts, tumblers, and parts, the back or outer sides being of wrought iron.

Lock spindles have a series of serrations or teeth at the end, which receives the removable knob, and fitted in the neck of the latter there is a spring click, which engages with the teeth severally whilst the knob is being pushed up or adjusted to its place on the spindle end, the click being finally held in its place by a screw.

[Printed, 1*s*. Drawings.]

A.D. 1854, February 16.—N° 372.

BUSH, John.—(*Provisional protection only.*)—This invention, relating to locks and lock furniture, consists :—

1st. "In constructing the spindles and handles of locks for " doors in such manner that they shall require no screw through " the neck of the handle; this I accomplish by making the " socket to receive the spindle with a projecting collar which " passes through the rose, and has a flange on the end turned " up all round to keep it in position; the rose has two or more " screw pins which pass almost through the door, and are met " on the other side by a corresponding number of female screws " into which they are secured; the spindle then passes through " into the socket in the handle, and requires no screw to fix it."

2nd. "I make a socket, having a flange on one end, and into " the opposite end I place a male screw; the spindle has a female " screw on the end, into which this fits, and the handle is screwed " on in the ordinary way."

3rd. I construct a socket having a solid tongue piece, which is " inserted into the handle; and under the rose I secure, by " means of wood screws, a metal plate, for the purpose of keeping the whole steady; the socket in this instance projecting " from the handle."

[Printed, 4*d*. No Drawings.]

A.D. 1854, February 20.—N° 405.

MILNER, William.—The object of this invention is the protection of locks from the destructive effects of gunpowder or other explosive compound. To this end, all the open space or spaces usually left about the tumblers and the other working parts of locks, are filled up with solid metal. This may be effected by casting what is called the lock case solid, leaving cavities of suitable form and size, wherein to fit the working parts, allowing them only sufficient space for action ; or the solid parts may be formed of steel upon the cap of the lock, and fitted into the case, the remote spaces being filled up with hard wood.

By this means there will be no available space left in the lock to serve as a receptacle for the powder or material, and the capacity for resisting the effects of explosion being thereby so materially increased, that any small quantity entered at the keyhole and exploded, would discharge in the same direction. Locks so constructed are applicable to safes and other depositories, and to strong rooms.

[Printed, 8*d*. Drawings.]

A.D. 1854, March 1.—N° 505.

HOLLAND, John Simon.—The object of this invention is the construction of locks capable of resisting attempts made with picklocks, false keys, and other such implements. The lock may be termed a double lock contained in one case, and having only one key, the bolt of the first operating the bolt of the second, and the tumblers of the first by means of a spur on each, the tumblers of the second, so that any attempt to pick the first lock would derange or sever the connection between them, which comprises only the bolt and the spurs. The second set of tumblers is called the main set, and the other the key set, and it is essential that the two sets do not receive simultaneous pressure from the bolt.

"The first set upon which the bolt presses is the key set, and " until their opposition is made to cease, the main set might as " well not be in the lock at all, for they have nothing to do; and " while the pressure from the bolt is being applied to the main " set, the key set might be absent without detriment, only " that they present so many insurmountable obstacles in the way " of getting at the main set. In making the lock, care must be " taken that the key tumbler bears the first pressure of the bolt, " for should the other touch first, the whole principle of the " lock would be subverted; and equal care must be taken that " when the second set touch, the key set shall not be free to " move as before. Care must also be taken to allow the key set " to move through a part of its path, without coming in contact " with any opposing surfaces of the main set, or being in any " other way whatever related, save that of proximity."

The construction may be varied by making the lock with three bolts, the additional bolt being placed between the two sets of tumblers.

[Printed, 1*s*. 8*d*, Drawings.]

A.D. 1854, March 2.—N° 514.

TANN, John.—This invention, relating to the construction of tumbler locks, has reference to the making of that part of the lock which is usually employed for holding the bolt when shot (termed the stump), independent of the bolt, instead of being affixed to it, the object being to take the end pressure of the bolt off the lock, and thereby render ineffectual any attempt to force back the bolt for the purpose of causing the main stump to press against the tumblers.

"I employ a bolt in which a main stump is fixed, which works " in the gates of the several tumblers in the manner commonly " practised, excepting that, for the purposes of my said invention, " I construct and arrange that tumbler, which is in immediate " contact with the bolt of the lock (and which I call a locking " or holding tumbler), in such manner that this tumbler alone " receives the pressure from the bolt of the lock, ... by " which I take off the pressure of the main stump upon the " other tumblers, and thus prevent them from hanging when " raised by any instrument other than the key of the lock; and " I employ a separate spring acting upon the tail end of the " before-mentioned locking or holding tumbler, for the purpose " of raising the front end of such said tumbler when the other " tumblers are raised by the action of the key thereon, and also " when there is no end pressure exerted upon the bolt, observing, " that the aforesaid locking or holding tumbler, by being acted " upon by the aforesaid spring only, is entirely self-acting, and " is not in any way operated upon by the key of the lock, and " it is only when end pressure is exerted upon the bolt (as commonly " practised in picking locks) that this self-acting tumbler " becomes locked or held, and does not therefore rise with the " other tumblers, and the locking or holding of this one tumbler " in particular arises from the pressure of the main stump against " the edge of the gate of this tumbler, being greater than the " pressure of the spring upon the tail end of such said tumbler. " Thus it will be seen, that so long as the end pressure remains " upon the bolt of the lock, such bolt cannot be drawn back, but " immediately such said pressure is removed, the spring acting " upon the tail end of the before-mentioned locking or holding " tumbler causes the opposite end thereof to rise and disengage " itself from the bolt which previously held it. And I protect

" such self-acting tumbler from being operated upon by a pick
" or other like instrument by forming a rebate upon the bolt
" below the edge of such said tumbler, and I place a shield
" beneath the under edges of most of the other tumblers. I also
" affix on the outside of the face or cap plate of the lock, and
" over the keyhole thereof, a cylindrical-shaped cap, on the in-
" side of which a solid piece of metal with a keyhole in it is
" capable of being moved round by the bit of the key for the
" purpose of closing the keyhole, and thereby preventing the
" introduction of a second instrument into the body of the lock
" for lifting the tumblers, supposing that end pressure on the
" bolt had been obtained."

[Printed, 1*s.* Drawings.]

A.D. 1854, May 22.—N° 1137.

CLARK, Frederick.—(*Provisional protection only.*)—This invention relates to "fixing the spindles of door and other knobs " and handles." The spindle of a lock is formed with a slit or opening at one or both ends, which are respectively furnished with ratchet or inclined teeth, with which a spring catch contained in the neck of each knob engages when the spindle ends are pushed therein. When desired to remove the knob, by passing a wire through a lateral hole in its neck, the spring may be pressed back, and the knob is then free to be drawn off the spindle end.

[Printed, 4*d.* No Drawings.]

A.D. 1854, June 12.—N° 1288.

YOUNG, John. This invention relates to the construction of a detector lock, and to latches adapted thereto, and to other locks. The edges of the free ends of two of the tumblers are serrated or notched, for the purpose of preventing the picking of the lock by forcing back the bolt. These two tumblers have a falling motion; they are mounted on a fixed pin which projects from the lock case and passes through a slotted opening in the bolt. The other or detector tumbler has a rising motion, and is mounted on a pin fixed in the bolt, and moves therewith. If at any time an attempt be made to pick the lock, and the detector tumbler be too much depressed by the raising of a pin, the edge of a nib projecting from its upper side passes the edge of a corresponding nib attached to a spring, and the parts of the lock become fixed in a deranged position, and can only be readjusted by the true key.

The latches described are operated by handles with knobs which, instead of turning in the ordinary way, have a sliding motion, the spindle oscillating on a vertical center.

[Printed, 8*d*. Drawings.]

A.D. 1854, June 15.—N° 1301.

GEDGE, John—(*Provisional protection only*).—This invention relates to spindles for locks and latches, and to the preparation for mounting knobs and handles thereon. At each end of the spindle, which should be flat on one of its sides, there is fixed a a flat spring, which lies in a recess formed to receive it, by cutting away a portion of the flat side of the spindle at each end, equal to the thickness of the spring, the end of which is rivetted or fixed near to the extreme end of the spindle, the other ends of the springs laying in the direction of each other, slightly curving out of their respective recesses. Inside each of the knobs there is a socket with one flat side to correspond with the form of the spindle, and that side is notched about its midlength in the form of a ratchet tooth. Whilst the knobs are being slid on to the spindle ends the springs lie flat in their respective recesses, but so soon as the notches in the spindle are past, they spring out and prevent the withdrawal of the knobs by abutting against the face respectively of the ratchet notches. When necessary to remove either of the knobs, the spring is pressed into its recess by a pin, that is inserted through a hole made crosswise in the neck of the knob, which is then free to be drawn off the spindle end.

[Printed, 6*d*. Drawing.]

A.D. 1854, July 1.—N° 1441.

JONES, Robert Lewis.—(*Provisional protection only.*)—This invention, relating to locks and keys, is described as follows :—

"I construct locks, and the keys belonging to them, in such " manner, that when the key is inserted and its handle turned " round in the ordinary manner, the key is separated into two " portions, one of which (which I call the "bit") enters a chamber " or box, while the other part, which includes the stem and handle " of the key, turns round in the ordinary manner. Before in-

" troducing the key, the aforesaid chamber is completely closed
" on all sides, except the front, so that no instrument can be
" introduced to feel the tumblers or pick the lock. When the key
" is introduced, the motion of the handle of the key is made to
" detach it from the bit, and at the same time to cover up the
" front opening of the chamber. The continuance of the motion
" of the handle is then made to open another part of the chamber,
" and allow the tumblers to come in contact with the bit. The
" bit being made with suitable notches in the ordinary manner,
" the tumblers are thus brought into their proper positions, and
" the continued motion of the handle of the key is made to
" throw the bolt of the lock forward or backward, as the case
" may be. The motion of the handle is continued until it has
" made a complete revolution and returned to its original position,
" in doing which it again removes the tumblers from the bit,
" closes the chamber, and then opens its front; the bit then
" becomes again attached to the stem and handle, and is withdrawn.
" The operation of locking and unlocking is therefore
" the same as with an ordinary lock."

[Printed, 4*d*. No Drawings.]

A.D. 1854, July 3.—N° 1449.

WALTERS, BENJAMIN.—The object of this invention, relating to spindles adapted for latches, and for mortice and other latch locks, is the means for readily fixing and adjusting knobs and handles thereon, so as to suit doors of any thickness. The novelty consists in the use or employment of a collar and a tapped nut, the latter of which screws on to the screw-threaded angles of an ordinary square spindle. Upon one end of the spindle the handle or knob is fixed on by a screw in the ordinary manner. A certain portion in depth of the hole in the neck of the knob intended for the other end of the spindle is enlarged and tapped or screw-threaded to receive a circular collar, which slides upon the square spindle, and externally is cut or furnished with a screw thread corresponding to the thread on the knob. Upon the plain spindle end which is protruded through the door the sliding collar is first placed, and then the nut is screwed on and adjusted close to the collar, which, with the spindle, must have freedom left to turn; the knob or handle is then screwed tightly on the collar, which enters, fills, and abuts against the end of the screw threaded recess in its neck, and by this means it is securely fixed and adjusted.

[Printed, 6*d*. Drawing.]

A.D. 1854, July 11.—N° 1514.

WOLVERSON, Edwin.—This invention relates to the construction of locks, wherein is introduced a series of plates capable of sliding vertically, and being constantly pressed down with springs. These plates are carried by the back end of the bolt, each being slotted vertically to slide up and down on a rib projecting from the side of the bolt; a horizontal slot opens at right angles into the vertical slot of each of the plates, relatively in the whole series varying in height. In the back end of the lock case is fixed a horizontal rib, whereon the plates, by means of the horizontal slots, slide when the bolt is withdrawn. This cannot take place until the horizontal slots, which vary in height in the different plates, are all brought into coincidence by the operation of the true key, which in turning acts upon the under side, and severally raises, placed over the keyhole, a series of slides, and these slides, by means of a projection on each engaging with a corresponding shoulder formed on the upper corner of each of the plates, raise the latter into position against the pressure of their springs, and they are maintained whilst sliding on the horizontal rib by a series of pawls or "clicks," which take into serrated notches respectively formed on the edge of each plate. When the bolt is shot, the clicks are disengaged by a tail on each, coming into contact with the frame in which the series of slides work.

In some cases the particular form of the slides, as shown, is modified.

[Printed, 6*d*. Drawing.]

A.D. 1854, August 1.—N° 1697.

HOLLAND, John, Simon.—This invention relating to the construction of locks and keys is manifold in its object, which consists in,—

1st. "Making the key of the lock and the tumblers stationary " during the motion of the bolt."

2nd. "Making the key of a number of separate pieces in the " shape of pins or small plates."

3rd. "Making a stopper to prevent the key making more than "one revolution in the same direction, and thus stop the key at "the point for its coming out of the keyhole."

4th. "A curtain or plate to be moved round by the key and "to move the bolt."

5th. "Making a fixed or removable obstacle to prevent the key "being brought round to the keyhole and withdrawn when the "bolt is not out or locked."

6th. "Locks intended to be acted on from both sides to have "two separate keyholes, and the key to act upon different parts "on the two sides."

7th. "Preventing the access of dust by making the back end "or ends of the bolt or bolts to pass through the case of the "lock."

8th. "Making the bolt of bolts pass into a recess, formed partly "by the lock or door, and partly by the jamb or side of the chest "or safe."

9th. "Making the bolt or bolts lock into a shelf or shelves, bar "or bars, having suitable staples, hooks, or tongues to receive a "suitable part of the bolt."

10th. "Making the key of the lock in separate pieces or steps "in the manner following, viz., the steps are fitted with a round "or other shaped hole in them to correspond with the shank of "the key, and another round hole to receive a screwed pin to "pass through them when on the shank of the key, or grooves "in the bits to receive a tongue on the key, and then to be "fastened with a screw, part of which is taken off, so that when "turned in one direction, the bits may be removed without "actually taking out the screw, and then when tightened to hold "them firmly."

11th. "Fitting a case to the key of the lock, to act by means "of a spring or springs, in such a manner, than when the key is "placed properly over the keyhole and pushed in, the case shall "come in contact with the front plate of the lock or the door, "and the key shall pass into the lock, leaving the case outside."

12th. "Making a hole or holes into the key-pipe through which "the air and any dust may pass when the key-pipe is thrust on "the key-pin."

13th. "Making the key of the lock with a bit at each end, "instead or a bit at one end, and a bow at the other."

14th. "Rounding or bevelling off the outside of the keyhole, " or making radiating grooves, or both, so as to render it more " difficult to injure the lock by gunpowder."

15. "Rounding or bevelling the edge of the front part of the " lock or door and the side to which it locks, in order to prevent " instruments being used."

16th. "Making a hook on the outside of the lock, with or " without a recess in the end, into which the bolt is shot when " locked, so as to adapt it to be used as a padlock."

17th. "Making a latch in such manner that, when set for " the purpose, the tumblers are right for the bolt being moved " without the key."

18th. To give increased strength or fastening, making a rabbet " or rabbets, tongue or tongues, on the upper and lower parts of " the outsides of the lock."

19th. "Preventing an opening being made by force so as to " get at the outer end of the bolt of the lock."

20th. To exclude dust, wet, or dampness, packing the entrances to the lock with flexible material.

21st. To let out water, making a hole in the bottom of a padlock.

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1854, August 4.—N° 1709.

MILES, Louis Player.—This invention relates to the construction of locks, wherein according to circumstances, any number of tumblers may be employed, each combined with its own spring, which is of brass. A regulator tumbler with a different motion is also introduced, and is pressed upon by the springs of the other tumblers, reacting upon them and producing " such a combination of difficulties as must ensure the highest " amount of safety in the lock." The tumblers with two exceptions have the usual catches in the upper and lower parts of their openings; the other two are called guide tumblers and have their openings differently formed, in order that when the bolt is shot, pressure may be maintained against the tumbler stud and regulator, at the same time that the catch of the other guide tumbler is in operation, thus either when the bolt is withdrawn or shot, the pressure of either one or other of the guide tumblers is maintained, which will preserve the due position of the regulator. The key is fitted to raise the tumblers and the regulator to the exact height required for disengaging their respective studs, and permitting the bolt to pass. The whole is covered by an ordinary cap.

[Printed, 8*d*. Drawings.]

A.D. 1854, August 9.—N° 1742.

PITT, William Charles.—(*A communication.*)—This invention relates to the construction of such knobs and handles as are ordinarily adapted to the spindles of door locks and latches, and to the rose plates used therewith. These knobs are made with a long straight neck, which passes through a clean hole suitably made in the woodwork of the door concentric with the spindle hole through the lock; the end or base of the neck of the knobs respectively at the opposite sides of the door, abutting and working against the lock plate. The roses are either made to constitute part of the knob or are made loose, the neck of the knob passing through them. The knobs are held on the spindle ends by screws, which pass transversely through the neck of the knob and are tapped into the spindle, which at one end has several holes, made alternately through it at right angles for the purposes of adjustment. Roses of wood or of china, intended to be either loose or fastened to the doors by screws, have metal foundations.

[Printed, 6*d*. Drawings.]

A.D. 1854, August 16.—N° 1787.

KENNARD, William.—This invention relating to the construction of knobs and handles as adapted to lock-spindles for doors, consists in so forming such "knobs or handles that they " will turn in the rose, and the rose is fixed by means of a screw " and nut. For this purpose the stems or shanks of the knobs " or handles are formed with flanches or projections, which fit " into and revolve in grooves or hollows formed in the roses, " by which, when a rose attached to a knob or handle is fixed or " held, the knob or handle can turn freely; and the rose is fixed " to the door or other surface by a tube, with a screw thereon, " which is fixed to the rose, and this screw receives and is fixed " by a screw nut. The spindle of the lock passes through the

" tube, which is affixed to the rose, and into a square socket in
" the stem of the handle or knob; by which combination of
" parts the fixing of the spindle to the knob or handle is rendered
" unnecessary."

[Printed, 6*d*. Drawing.]

A.D. 1854, September 2.—N° 1917.

LEWIS, George.—This invention relates to what is called "a "double-action lever lock," the mechanical arrangements and parts of which are adapted to locks of all kinds.

The parts consist of:—

1st. Two knife-edged stumps which are firmly fixed near to the fore end at opposite sides on the face of the lock bolt, so that the levers in locking and unlocking can pass between them, but which, if pressure be applied to the bolt and any of the levers be either too high or too low, take into one or other of a series of notches, formed on the lever ends, and force the levers back on a fast stump, "thereby preventing the possibility of picking."

2nd. Slotting the back end of the levers to permit of their sliding back on the fast stump, which is firmly fixed projecting from the lock plate, so as to resist any pressure made by the knife-edged stumps on the levers, if attempts be made at any time to force back the bolt.

3rd. Adapting a sliding or covering plate to the keyhole, for the purpose of closing it when attempts are made to pick the lock by pressing back the bolt.

4th. Affixing anti-friction rollers to the guide arm, and to the striking end of the latch bolt.

5th. Adapting a regulating screw to knob handles; this screw passes through the center of the knob and is screw tapped into the spindle end. By its use the knob or knobs are adjusted and firmly fixed on spindle ends.

[Printed, 6*d*. Drawing.]

A.D. 1854, September 25.—No. 2060.

McCONNEL, Robert.—This invention relates to the construction of locks "whereby increased security is obtainable," also to a contrivance for moving door latches with "greater certainty of " action."

Regarding locks, the construction of the bolt and tumblers and the key is such, that in turning the latter for unlocking, it so acts upon an incline on the underside of the bolt, that the bolt is first moved outwards before it is withdrawn into the lock, the key continuing to turn in the same direction. The bolt carries the usual stump that works in the openings of the tumblers, which are severally formed to suit its peculiar motion. The stump in relation to the openings in the tumblers takes four separate moves, each requiring a different position of the tumblers, so that the chances against bringing them into coincident position for moving the bolt are considerably increased. The tumblers are actuated by the side of the key ward-bit as well as by its end, so that increased variety and complexity is imparted to their movements, and the points of the key which act on the bolt and the tumblers, are set or "bent as it were" apart in different degrees. The pin upon which the key barrel is entered is either made oval, flattened, or grooved, pins are fitted in the key barrel, and a movable shield oscillating on a fixed pin, is adapted to the keyhole.

The ordinary "follow" employed in the construction of door latches is dispensed with, and the handle spindle which is fixed to the short arm of the crank lever moves the bolt; it works in a slot in the sides of the latch box, and may be operated by either depressing or turning it.

[Printed, 1*s*. Drawings.]

A.D. 1854, September 28.—N° 2080.

CLARK, Frederick.—This invention relates to the construction of spindles and bushes for door knobs and similar purposes.

The spindle has formed upon it at both or at "one end only a " thread or screw, which upon the spindle being passed through " the door may . . . . be screwed more or less, according to the " thickness of the door or drawer, into a corresponding thread, " formed in a collar for the said spindle, ... which turns in a " bush or socket, which bush or socket is screwed into or other- " wise secured in the door knob or handle, and moves with it. " . . . . The spindle collar . . . . is placed in conjunction with " and secured in the proper position as regards the bush or " socket by means of an annular rim on an annular shoulder of " the spindle collar, which rim is turned over, forming a groove,

" enclosing a flange on the outside of the said bush, which flange " allows free play to the spindle collar, connected by the said " groove; this flange and the conjunction with the said spindle " collar being the novelty as regards the said bush."

[Printed, 6*d*. Drawing.]

A.D. 1854, October 3.—N° 2122. (* *)

NEWTON, WILLIAM EDWARD.—(*A communication from Laurentius Mathias Eiler.*)—This invention is entitled " Improvements " in the construction of locks," and it relates to " the magnetic " lock."

This name is given to a lock in which there is no key or keyhole, or any " opening whereby access may be obtained to the " interior of the lock with any instrument whatever;" but the bolt is shot forward, and fastened by means of " a powerful magnet." In order to fix the bolt after it is shot forward, there are slides working in grooves, the slides being of iron and so connected that until all the slides are moved back in a certain order the bolt is not free.

For this purpose the groves are made to meet at an angle, and the slides of the grooves further removed from the bolt to enter those nearer to the bolt in succession; each slide is fixed, therefore, until the first in the series, (and all further removed from the bolt than itself), is moved back in its groove. The possessor of the lock has a plan of the grooves, by which he is enabled to act properly on the slides from the outside by means of the magnet.

One or more " permutation plates " may be used where great security is required; these change the combination of the internal parts with facility.

[Printed, 10*d*. Drawing.]

A.D. 1854, December 9.—N° 2592.

BUTTON, REUBEN.—(*Provisional protection only.*)—This invention relates to the so constructing locks with a curtain and parts, that only the proper key can gain access, or if by possibility access be gained otherwise, none but the true key can shoot the bolt, which is furnished with an additional spring catch, and the body of the key is in two parts held together when out of the lock by a spring or springs. The curtain consists of a fixed ring, the outer periphery of which is eccentric to the inside, which circumvests the fixed pin that receives the barrel of the key. Around this pin a solid disc works, communicating at bottom through a plate with the bolt, which it shoots after the tumblers have been acted upon by the key. "A shield rises round the pin to the upper cover of the curtain, "and is just of the shape of the key. Round the excentric part "of the ring is another ring, free to move round it when pro-"pelled by the key; it is provided with two jambs or uprights "for receiving that part of the body of the key on which the "wards are cut. On this curtain is a moveable disc, which forms "a cover, with a hole cut in it large enough to admit the key. "This opening corresponds with that made by the shield, before "alluded to, rising from the disc which shoots the bolt, and that "left between the two uprights in the travelling ring; it extends "further than the two uprights, to allow of the expansion of the "key when travelling round the excentric ring. This disc is "notched out in one or two parts, to receive one or two sets of "guards, which are moveable only by the proper key. The ". . . . key is so constructed, that so long as out of the lock the "two parts of the body shall keep together, but on being put into "the lock a spring or springs shall allow of one part of the key "travelling round inside, while the other part, that carrying the "wards, travels round the outside and excentric part of the ring; "and when it reaches the part of greatest excentricity, it lifts "the tumblers, when the bolt disc, moved by the inner part "of the key, simultaneously shoots the bolt. An additional "spring catch fits into notches both at top and bottom of the "bolt, and should any attempt be made to force the bolt back, "the springs force the catch into one or other of these notches, "and so hold it fast until liberated by the proper key."

[Printed, 4*d*. No Drawings.]

A.D. 1854, December 12.—N° 2611.

LARKIN, Richard.—The object of this invention which relates to "various methods of constructing locks and keys" is to render such locks secure against attempts to pick or otherwise unlock them excepting by the true key. To this end a ward is attached to the case of the lock, extending downwards to a level with the bottom of the tumblers, so as to screen them from a pick working round the key pin, and a revolving barrel and curtain is fitted to and works round the ward, so as to close the keyhole as the key turns. It is proposed "to fix a small stud on the outer surface "of the tumbler nearest the keyhole, for the purpose of catching "against a cam projecting from the under side of the revolving "curtain aforesaid. The position of the said cam is so arranged, "that whenever the revolving curtain is brought round, so as to "leave the keyhole open, the said cam shall catch against the "stud affixed to the tumbler aforesaid, and thus hold it firmly "down. By this arrangement whenever the interior of the lock "is so exposed that the positions of the gatings in the several "tumblers might otherwise be ascertained by putting a pressure "on the bolt, and thus causing them to bind against the bolt "stump, the entire force of such pressure is received by the "tumbler thus held fast by the cam on the revolving curtain, as "aforesaid, the walls of such tumbler being carried out beyond "all the others, and thus preserving them perfectly free."

It is also proposed for the purpose of rendering modifications of the lock barrel secure, to adapt a catch movement for receiving or changing the effect of any pressure given to the slides for the purpose of causing them to bind; also to so construct the revolving barrel, that the end which throws the bolt is a separate piece, attached to the barrel by screws, and sufficiently strong for that purpose, but not capable of resisting, and so be liable to give way under violent pressure; also to construct, for the purpose of rendering certain arrangements of the barrel lock changeable, each of the slides upon which the key acts of two pieces, one to overlap and be capable of moving freely on the other, one piece to contain the notch which allows it to pass round within the circular catch plate, and the other to be operated upon by the key in the act of locking or unlocking; also to form keys for such and similar locks with tubular shafts, and with steps formed by the ends of movable bits capable of sliding in grooves made on the key shaft parallel with its axis, and of being fixed in any position relatively by a screw nut.

Tumbler locks are made changeable by a similar arrangement of primary and complementary tumblers, and instead of a clamp plate or an arrangement of teeth and notches, an eccentric roller is made to press upon the complimentary tumblers when the bolt is thrown, and bind them together in the position imparted to them by any fresh arrangement of the key. It is also proposed to convey the key (consisting of an arrangement of step slides in a small rectangular frame) into the lock by means of a carriage.

[Printed, 1*s*. Drawings.]

A.D. 1854, December 13.—N° 2616.

STANSBURY, CHARLES FREDERICK.—(*A communication.*)—The object of this invention relating to "a machine for cutting keys," is to cut key blanks with any number of bits or steps of any width or depth, so as to have the power of varying indefinitely the combinations of which bits of different length and breadth are capable. The machine is arranged similar to a lathe, carrying a circular cutter or saw in combination "with a compound slide " rest supporting a vice or carriage swinging between centres, by " which means the bit of the key is brought into the proper " position in contact with the cutter, in order to produce steps or " cuts of any required depth, and at any required distance from " each other."

[Printed, 8*d*. Drawings.]

A.D. 1854, December 20.—N° 2684.

MILNER, WILLIAM.—This invention relates to the construction of safes and depositories, and to locks adapted for securing them, and it refers principally to the filling up of the cavity or chamber formed in the door between the inner and outer plates, wherein the lock and large bolts which shoot out at the top, bottom, and sides are situated.

1st. Relates to the means employed for preventing the introduction into the cavity between the outer and inner plates of safe doors, of gunpowder or other explosive substance, which consists in filling up all the useless internal space with wood or other suitable material, sufficient room only being left for the working of the operating parts, so that no lodgment or space is left to hold any available quantity of explosible matter.

2nd. Is supplementary to previous Letters Patent granted to this inventor, and bearing date February 20th, 1854, No. 405, which former invention consisted in filling up the useless space in locks, and this part of the present invention refers to a further reduction of space still available for the introduction of explosive matter, viz., that remnant of space left in locks for the access and turning round of the ward-bit of the key, so that the latter now is not allowed to make a complete revolution, but is to be withdrawn the moment the bolts are either shot and locked or unlocked.

[Printed, 10*d*. Drawings.]

A.D. 1854, December 23.—N° 2712.

GIROUX, Barthélemy Martin.—(*Provisional protection only.*)—This invention relating to door locks, refers to the construction of such locks as are furnished with latches, bolts, or levers, which when the door is closed engage in a staple fixed in the door frame; but instead of disengaging them by turning the knob or handle, the invention consists in lifting or withdrawing them by either pushing or pulling the knob or handle, to the spindle of which is affixed an inclined plane to act on one or more rollers placed in a slot in the bolt, or the same result may be effected so as to raise the latch by causing the spindle to act upon a cranked lever, the handle on one side of the door requiring to be pushed, and on the opposite side to be pulled in order to disengage the latch.

[Printed, 4*d*. No Drawings.]

1855.

A.D. 1855, January 29.—N° 218.

IMRAY, John.—This invention relating to the construction of locks is described as follows :—

"The case of my improved lock has each side perforated by a
" round hole to admit the proper key. On the inner side of each
" hole is a circular recess to admit a boss or rotating tumbler.
" The bolt has on its edge next the keyhole two circular hollows,
" so situated that at either extreme of its throw one of the bosses
" can fit into the hollow, and thereby prevent the bolt from
" sliding. This boss has one part of its circumference cut off,
" which being presented to the bolt, allows it to slide. The same
" boss has one tooth, and the bolt has two projecting teeth near
" its farther edge. The other boss has an arm, on which is
" mounted a pinion free to revolve, and capable of gearing with
" the tooth on the boss or the teeth on the bolt."

"Each boss is perforated by a hole of any form except circular, "and the key is a spindle, with two collars near its point, suited "to the holes in the bosses, so that when the key is inserted "they can both be turned by it; and they are so adjusted, that "when the key is turned, the pinion gears with the tooth on the "boss and the teeth on the bolt at the same time, and being thus "prevented from turning on its own axis, throws the bolt its "proper distance. Unless the key has its collars properly suited "to the holes in the bosses, they cannot be turned by it into "such a relative position that the pinion may gear as described, "and thus the effect of a false key is to turn the bosses without "moving the bolt."

[Printed, 8*d*. Drawings.]

A.D. 1855, February 5.—N° 271.

GIBBONS, JOSEPH.—This invention has for its object an improvement in the construction of the spindles of door locks, with a view to facilitate the adjustment and fixing of the knobs. To this end, each spindle is slit at one or both ends, and to one side of the slit is fixed a small steel spring. The hole in the neck of each knob is gradually enlarged internally, and each is provided with a screw which corresponds to a hole tapped laterally through one side of the neck of the knob. The end of this screw, when screwed into the hole abuts against the end of the spring, causing it to separate laterally from the spindle end, and press against the side of the enlarged part of the hole in the knob, so that altho' the spindle end with the spring will slide into the hole, it cannot whilst the spring is acted upon by the screw be withdrawn.

[Printed, 6*d*. Drawing.]

A.D. 1855, April 25.—N° 934.

BELLFORD, AUGUSTE EDOUARD LORADOUX.—(*A communication.*)—This invention relates to a lock combining a catch and sliding bolt and adapted for sliding-doors.

In the casing of the lock, which may be of rectangular form, there is a slotted bolt mounted to slide on a stump, which passes through the slot. "Between the bolt and the casing there is a "guard tumbler; one end of this tumbler works on the said "stump, and the opposite end is provided with a projection, "against the back side of which a pin on the bolt catches when

" the bolt is thrown forward. There are two springs fixed on the " casing, one of which acts upon the bolt and the other upon the " guard tumbler. Just below the bolt there is a catch, the inner " end of which works on a pivot; the outer end passes through " a slot or opening in the side of the casing, the said slot being " sufficiently long to allow the outer end of the sliding bolt to " pass through. To one side of the framing of the door there " is secured a slotted bar, and a mortise is made in the framing " over which the bar is secured, the lower edge of the slot in the " bar being some distance above the lower edge of the mortise."

"When the door is closed, the lower or inclined edge at the " outer end of the catch strikes against the lower edge of the " slot in the bar, and the catch passes through the slot, and is " forced down over the lower edge of the said slot by the spring, " which acts both upon the bolt and catch. The key is then " inserted in the keyhole and turned, and the guard tumbler " is first raised, so that the projection will be raised from the pin " attached to the bolt; the key then throws the outer end of " the bolt through the slot in the bar, and the catch is thereby " prevented from being raised until the bar is thrown back. The " catch is operated upon by a knob in the usual manner."

[Printed, 6*d*. Drawing.]

A.D. 1855, May 1.—N° 978.

WRIGHT, Lemuel Wellman.—(*Provisional protection only.*) —This invention relating to the construction of locks, "consists in constructing a form of lock in which the key has to " pass one or a series of slotted plates or wards which it meets " at every half turn. A screw pin (being an exact counterpart " of the key, which is a screw key,) is fitted to the lock plate " and receives the key, on the lower end of which may be a bit " to catch one or more tumblers. A cam piece is attached to the " stem of the screw pin at its lower end and under the bolt, " and when in a state of rest is in a line almost parallel with " and against a portion of the bolt. Friction rollers may or " may not be used; if used they will work on a pin or stud. The " tumbler or tumblers are applied to the side of the bolt, working " by means of a spring in a slot or notch, which tumblers are " raised by the key in the act of locking only, and not when

" applied for unlocking. The screw key both in locking and " unlocking turns in the same direction."

[Printed, 4*d*. No Drawings.]

A.D. 1855, May 11.—N° 1063.

HENDERSON, Constantine.—The object of this invention, which relates to the construction of locks, is to render them less liable to be opened by picks or false keys. It consists in adapting to the outside of the face plate of any ordinary or other lock a kind of auxiliary lock, required to be first opened before access can be gained to the keyhole of the main lock.

The auxiliary lock consists of one or more concentric split rings. placed to work round the pin of the lock between the wards; these rings are moved to their normal position by springs, and they are covered by a shield or outer casing, so as to close the main keyhole. An additional concentric ward may be fitted round the pin inside the main lock. The key when inserted in the auxiliary lock first operates upon the rings, bringing all the open splits into coincidence, and thus forms a free passage for itself into the main lock; the internal concentric ward prevents access for any improper action on the main bolt.

[Printed, 10*d*. Drawings.]

A.D. 1855, May 21.—N° 1127.

TUCKER, Walter Henry.—This invention relating to the construction of locks, consists :—

1st. In so attaching the combination stump to the barrel or curtain, that any improper instruments introduced and turned in the lock, shall be carried past before the barrel can be turned to the security parts.

2nd. Reducing the cost of some locks by making the revolving curtain act also as the bolt.

3rd. Causing the barrel or curtain or parts in connection therewith to operate in the process of locking before the key can be withdrawn.

4th. Instead of throwing the bolt directly by the key, ca the barrel or curtain or some parts connected therewith t on the bolt.

5th. Lessening the cost and labour in making spring locks and latches, by causing the barrel or curtain or the parts connected to carry back the bolts or latches.

6th. Making padlocks to lock at the jointed end of the shackle, which is prolonged and extends into the lock.

7th. Using a comb spring to press upon the edges of the combined security parts of a lock, only for the purpose of counterbalancing the adhesion of their surfaces.

8th. So shaping the combined security parts, that they shall surround the drill pin and thereby diminish the space available for the introduction of gunpowder; also making apertures in the rim of the lock cap for the powder to escape.

[Printed, 4*d*. No Drawings.]

A.D. 1855, June 9.—N° 1315.

NETTLEFOLD, JOHN SUTTON, NETTLEFOLD, EDWARD JOHN, and NETTLEFOLD, JOSEPH HENRY.—(*A communication.*)—This invention relates to a variety of details and contrivances applicable in the constructional arrangements of locks, consisting of:—

In a flush-bolt desk lock, a mode of shooting the bolt by means of a diagonal stop in a sliding plate, which is operated by the key.

A flush-bolt desk lock, in which motion is given to the bolt by an oscillating tumbler, the key acting on its curved face.

Forming the tumblers of locks and their springs respectively out of one and the same piece of metal.

The application to locks of an expanding stump, capable of holding the levers when end pressure is applied to the bolt. A modification of this part of the invention consists of a hanging plate carrying a stump and a stud, which engages with an inclined notch in the bolt.

Employing a double stump or two stumps combined with two discs, to counteract end pressure.

Applying to locks a sliding shield for the purpose of preventing access to the levers by means of false keys.

The application to locks for the purpose of excluding dust, of two hanging pieces, which are separated by the key when in operation, but close when it is withdrawn, and thereby constitute what is termed an "expanding chamber."

[Printed, 10*d*. Drawings.]

A.D. 1855, June 11.—N° 1328. (* *)

KIND, John David.—"An improvement or improvements in "spindles for locks and latches, and in attaching knobs or "handles to the said spindles." The ends of the spindle, either cylindrical or square, are cut with a thread and slit longitudinally. The knobs are cut with a corresponding thread and screwed on; a pin is passed through the neck of the knob and through the lit. Or one knob only may be secured in this manner, and the other by sliding it over the spindle end, and by passing a screw or cotter through the neck and the spindle. Teeth and notches may be substituted for the screw threads.

[Printed, 6*d*. Drawing.]

A.D. 1855, June 26.—N° 1464.

CLEMENTS, James Moore.—(*Provisional protection only.*)—This invention relates to the construction of "spring lock fastenings" adapted for closing pockets, bags, reticules, purses, and similar articles.

1st. In forming the frame of the fastening, two thin strips of steel or other suitable elastic metal are employed, tinned or coated to prevent oxidation; these steel strips are so set to a curved form that when united together at the ends they form an "acute "elipse." The same figure may be produced by using only one strip suitably bent and set so that the two ends come together. At the midlength on one side is fixed a spring catch which, when the two sides are pressed together, engages with a corresponding hasp or other suitable contrivance on the other side. This frame forms the mouth of the pocket or purse, and should be covered with the same material as the garment, pocket, or purse, as the case may be, is made, means being provided for liberating the catch when access to the receptacle is desired.

2nd. To prevent cutting, wire threads are introduced or woven into the material of which pockets, purses, reticules, or bags are made.

[Printed, 4*d*. No Drawings.]

A.D. 1855, July 18.—N° 1623.

SCULLY, Vincent, and HEYWOOD, Bennett Johns.—This invention relating to the construction of locks and latches and their keys, consists in the adaptation of a guard to the keyhole for protecting the internal mechanism of the lock or latch, and prevent tampering therewith or the introduction of any key or instrument otherwise than the true key, which requires to be specially formed and fitted. To this end, instead of a keyhole of an ordinary shape there is formed a cylindrical opening, through which the key end is inserted. Concentrically fitted in this opening there is what is termed a "swivel pin" which carries, twining partly round it, a helical rib or feather. In the inside of the barrel of the key there is a helical groove which slides upon the feather, so that either the pin or the key whilst being inserted must make half a revolution, the incline of the feather on the pin and of the groove in the key exactly corresponding.

Several modifications, and various adaptations differing materially in constructional detail, are described and illustrated; these include an ordinary door latch, a door handle, a screw plug adapted for fastening the lids of desks and boxes, a screw plug fastening for a door, a lock suitable for carpet bags and such like uses, a fastening for a dog's collar, and a spring catch padlock.

[Printed, 10*d*. Drawings.]

A.D. 1855, August 13.—Nº 1837.

BUTLER, THOMAS.—This invention relating to the construction of locks "consists in affixing a number of stumps to the bolt of
" a lock, which stumps bear against circular pieces of metal re-
" volving on centres connected with the upper plate of the lock;
" these circular pieces form stops against which the stumps bear.
" In the revolving stops are formed grooves, through which the
" stumps pass when the bolt is shot in or out. Thus it will be
" seen that the bolt cannot be moved until each of the stops is
" arranged with its groove opposite to the stump on the bolt
" which is to pass through it. The stops may be turned by hand
" from the exterior of the lock, but I prefer so to arrange them
" that they can only be turned by a key introduced through key-
" holes arranged round the main keyhole on the face of the lock.
" I also arrange the front plate of the lock with hooks, which
" catch into the bolt, so that the plate of the lock can only be
" removed when the bolt is half shot, or in some other previously
" arranged position."

The lock described and illustrated is constructed with three *revolving stops*, but a greater or lesser number may be employed;

these stops are arranged to be acted upon by a key, but instead thereof, each stop for the purpose of setting it may have a handle.

[Printed, 10*d*. Drawings.]

A.D. 1855, August 15.—N° 1851.

AVERY, John.—(*A communication.*)—This is an invention of a combined alarum and lock or apparatus to be applied to drawers, tills, &c. to secure them, and to give notice should any improper attempts be made to open them. The case of the apparatus, which contains at one end an alarm bell, is secured to the front of the drawer. The alarm mechanism is of the ordinary kind known to clockmakers; it is actuated by a spring, and is provided with a hammer which strikes upon a bell. The alarm apparatus remains inactive ordinarily, but if any attempt be made to open the drawer by pulling the knob or handle, a discharging lever is caused by a collar on the knob spindle to liberate the detention pin of an escapement wheel, which sets the bell hammer in motion. The withdrawal of the bolt to unlock the drawer is effected by pressure upon the knob, in such manner as to force the knob spindle against a lever which operates the bolt rod, previous to which a locking lever has to be displaced. This is effected by one of a number of key levers, which are disposed side by side on a horizontal fulcrum, their ends hanging through an opening in the bottom of the drawer in a convenient position to be operated by the fingers, whilst the palm of the hand is pressing upon the knob. Only one of the key levers is employed for releasing the bolt lever, all the others if touched will effect the discharging lever and set the alarum in motion. The bolt rod when relieved from pressure is returned by a spring.

A registering apparatus to indicate the number of improper attempts made to open the drawer is attached to the apparatus. A modification is described, exhibiting a secondary knob on the spindle of the primary knob which, in order to open the drawer, is pressed inwards whilst the secondary knob is turned.

[Printed, 8*d*. Drawings.]

A.D. 1855, August 30.—N° 1959.

STANSBURY, Charles Frederick.—(*A communication from Henry A. Bleckmann.*)—(*Letters Patent void for want of Final Specification.*) — This invention relates to what is termed a

" changeable lock, and consists in forming a lock with a number " of tumblers so arranged that they can be worked by means of a " key with changeable bits, and that when the bolt of the lock " is thrown out by a certain arrangement of bits it can only be " thrown back by the same arrangement, and yet admitting of " innumerable changes of the relative positions of the bits on the " key without requiring a change in the tumblers."

[Printed, 4*d*. No Drawings.]

A.D. 1855, September 4.—N° 2001.

MUELLER, Charles Gustav.—The object of this invention is the construction of "a cheap yet strong and effective lock that " shall be powder and burglar proof, applicable" to doors and general purposes, right or left handed, and adaptable as an inside, outside, or a mortice lock. After the key has lifted the internal mechanism of the lock into position, the bolt is thrown by the turning of a knob handle, whereon is fixed a circular plate having a notch in its periphery, the sides of which engage with a stud projecting from the bolt when the latter is shot, a central piece sliding inside the knob having to be pressed upon to cause the regression of a pin from a hole in the plate before the knob is at liberty. When the bolt is shot or thrown out to the extremity of its action, a piece by the further movement of the knob comes behind the bolt, and it is the removal of this stop piece, and the means contrived for the operation, that constitutes the security of the lock. The key is small and of unusual shape, having a series of sliding ward-bits, which fit into grooves covered by a small face plate attached to the key plate by screws, whereby when the bits are adjusted they are held in relative position. The lock contains a number of bars or tumblers with holes to receive a number of sliding pins which pass through a movable plate; there are also a number of toothed segments and a forked lever. The key is first inserted to bring the internal works into correct position when required to withdraw or unlock the bolt, which is then effected by turning the knob in the contrary direction, pressure being applied to the central sliding piece as in the act of locking. The ward-bits of the key are each marked with minute figures requiring correct adjustment, so that if their true adjustment after locking be deranged, and the key be lost or fall into other hands it would be useless for the purpose of opening the lock, until the adjustment was restored. "The key may be so made as to require "weeks before the whole combination could be gone through "with."

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1855, September 17.—N° 2096.

SMITH, WILLIAM HANDASYD.—(*Provisional protection only*.)—This invention relating to "bolts, latches, and locks" consists of a door bolt, which may also be combined with a lock or latch.

The bolt comprises a cylindrical or other formed rod, designed to slide in a case or tube, flanged at one end and having a slot in its side, wherethrough the handle which is attached to the bolt laterally protrudes. The bolt case is inserted in a hole made in the edge of the door, and is secured by the flange, which is fastened to the door edge by screws; corresponding with the slot in the bolt case there is a slot for the handle to work through made in the door, which slot is lined or edged by a rose or metal plate. For the purpose of locking the main bolt a small vertical bolt fitted in the rose plate may be adapted.

The bolt may be used as a spring latch by chamfering the projecting end, and applying a spring to the other or inner end of the bolt, inside the case. It may be also used as a lock arranged with ordinary works to shoot a vertical bolt, and thereby actuate the main bolt.

[Printed, 4*d*. No Drawings.]

A.D. 1855, November 13.—N° 2554.

WEBB, WILLIAM, WEBB, JOHN, junior, and CATSTREE, JAMES.—This invention relates to a mode of attaching door knobs to spindles. The knob which is fixed to one end of the square rod-iron spindle, is rivetted in a square socket formed inside the neck and base of the knob; upon the other end of the spindle is formed a series of serrated notches, and inside the neck of the loose knob is a cavity, wherein is fitted a small catch and spring before the spherical part of the knob is attached by closing (in the usual way) its edges round the neck. When the knob is pushed on the spindle end protruding from a door, lock, or latch, or otherwise, the spring catch snaps in whilst passing over the serrations, and holds firmly when the shoulder of the knob is pushed up to the rose plate against the surface of the door

When required to remove the knob, an awl is pushed through a small hole in the side of the knob directly opposite the end of the catch, upon which it is pressed and held, forcing back the spring whilst the knob is drawn off the spindle end. Two sets of serrated notches are formed, one on each side of the spindle, the notches in the two sets or series being relatively intermediate for the purpose of obtaining without friction a closer adjustment of the knob to the rose plate.

[Printed, 6*d.* Drawing.]

A.D. 1855, November 14.—N° 2572.

NEWTON, Alfred Vincent.—(*A communication.*)—This invention relates "to various novel arrangements and constructions " of the internal parts of locks, whereby it is rendered impossible " to throw back the bolt and open the lock with any other instru- " ment than the right key. This object is effected by the em- " ployment of a set of inert tumblers upon which the form of " the key is impressed, after which they are removed from reach " or influence through the keyhole before they reach the fence, " which permits them, if properly arranged, to be moved far " enough to allow the bolt to be thrown, but which prevents them " from being moved unless they are properly arranged. In order " to increase the difficulties of serreptitiously making an instru- " ment to open the lock instead of the proper key, and which " could be done if the position of the tumblers could be ascer- " tained, the tumblers are, after withdrawing the key, always " brought back to their original position, so that they will in no " way indicate what kind of key or instrument has been used in " opening the lock. The edges or ends of these key tumblers " are also cut away, so as to prevent the long bits of the key " from marking their length upon the tumblers. By thus cutting " away the ends of the tumblers, all chance of taking an impres- " sion of the long bits of the key which has been used to open " the lock is avoided. As the usual mode of ascertaining the " position of the tumblers is by taking an impression thereof on " the key by means of paint or lamp black, I propose to employ " a wiper to pass over the surface of the tumblers which have " been acted upon by the short bits of the key. This wiper is " attached to an excentric curved piece placed round the keyhole, " so that it may be acted upon by the key or any other instru- " ment that is introduced therein. This wiper, will, therefore,

" remove any print or track which might have been left by the " short bits on the key tumblers in acting on them, and thus " prevent the slightest chance of taking an impression of any of " the bits of the key."

[Printed, 1*s*. Drawings.]

A.D. 1855, November 20.—N° 2616.

CLARK, Charles Frederick, and BOWER, Manoah.—This invention, relating to wedge bolts and fastenings, " consists " in making the bolt plate in two parts, with grooves down on " the inner edges, through which the bolt (formed in the shape " of a thin broad wedge) passes in a longitudinal direction, which " will have the effect of securing the door, window, or other part " to which it may be applied in a simple and efficient manner."

As applied to a door, one side of the bolt plate is to be securely fixed " to the door jamb, and the other in a corresponding posi- " tion on the edge of the door, and to this part we prefer attach- " ing the wedge bolt, which we do by forming a slot in the back " of the bolt plate parallel to its edge, through which we pass " a small pin screwed into the lower end of the wedge bolt, and " as the bolt is drawn up the pin will pass up through the slot, " forming an axis for the bolt to work on when drawn out, " allowing it to pass around at right angles to the position it " assumes when in use."

" When such fastenings are required for securing windows, or " such like situations, we prefer dividing the wedge at the thinner " end, about one-third of its length; and so far up of the two " plates are connecting parts, which are clipped and held together " by the slot in the wedge, which will have the effect of forcing " up the top sash and pressing down the bottom one, as well as " bracing them tightly together where they meet."

Modifications are described and shown, the shape or size being " varied to suit the position of the wedge bolt, or its intended " application.

[Printed, 10*d*. Drawings.]

1856.

A.D. 1856, January 16.—N° 112.

McEVOY, HENRY.—This invention relating to locks, latches, and box staples, consists in :—

1st. " So constructing the bolt forming the latch part of the " lock as to obtain great facility of action, and render it less " liable to get out of order, in which case great force is required " to shut the door, the frame of which becomes disturbed thereby, " and the staple belonging to the lock frequently injured."

2nd. " An improved method of combining the bolt forming " the latch with that part of the lock or latch called the 'follower,' " so that in turning the handle to the right hand or towards the " left, the same amount of force is required, a smooth action " obtained, and less liability to get out of order secured."

3rd. " Strengthening the lock frame, by forming parts of the " material of which the sides of the frame are made in such way " as to cause the parts thus formed to lie flatly upon the face of " the lock frame, thereby giving an opportunity of using screws " with countersunk heads, instead of the round-headed screws " generally used, and the screws thus passing through a double " thickness of iron, much greater strength is thereby obtained in " the lock."

4th. " The construction of what are called box staples belonging to locks and latches. I form each staple out of one piece " of wrought iron, by which greater strength is secured than " when two pieces are combined together for the same purpose."

[Printed, 6*d*. Drawings.]

A.D. 1856, January 18.—N° 136. (* *)

SCHLOSS, JOSEPH.—" A piston bolt, or certain improvements " in fastening travelling bags, portemonnaies, cigar cases, writing " desks, drawers, doors, and similar objects where locks, bolts, " or clasps are employed." This invention may be used " either " for mere fastening or bolting purposes or in combination with " a double-action lock." For the former purpose a cylinder of any suitable metal or substance is employed varying in length from one to three inches and in diameter from one-eighth to one inch or more. It contains a piston " which works in it at about

" half way of the length of the cylinder against a spiral spring " fixed on the other end to a knob similar to that of the piston." To the lower side of the piston is secured a pin which "runs in " a small opening in the female part of the clasp," and opposite to the pin on the male part is a hook, "which by a slight pressure " is forced to catch that pin, whereby the closing is effected."

For the latter purpose "the mechanism, although based on the " same principle, is somewhat more complicated." A plate with two hooks moves inside the box of the lock, and is worked upon by the pin of the piston. A pin on the plate is caught by one side of a projection on the tumbler when unlocked and by the other side when locked; the tumbler "is kept firmly down" by a spring. "The mere bolting is effected" by introducing the hasps into corresponding openings in the box and catching them in the hooks, and as both hooks and hasps are rounded off, a slight pressure only is required. The hooks are disengaged by pressing the piston "from right to left, which imparts a similar motion to " the plate." The piston returns to its former position through the action of the tumbler spring and an inclined plane which carries the plate pin back. The process of locking and unlocking is explained.

One modification is described which consists in placing the lock above the bolt:—The upper side of the piston is formed with a projecting stop, and the piston "is cut smaller in this part for " a certain distance to admit a small piece of metal" made "with " two projections," on which the key acts, and also a projection which forces up a spring in passing it. The process of locking and unlocking this also is explained.

One end of the cylinder may be formed to constitute "a puzzle " lock:"—The knob is moveable and has an internal projection corresponding to one on the piston; by turning the knob its projection is brought downwards and meets the projection on the piston, "by which the opening is prevented." In this case the piston "must be cylindrical;" in other cases "it may be of any " convenient form."

[Printed, 6*d*. Drawing.]

A.D. 1856, January 21.—Nº 156.

FENTON, SAMUEL.—(*Provisional protection only.*)—The object of this invention which relates to locks and fastenings, is so to construct a mortise lock, having only one bolt, that it shall answer all the purposes of a lock with three bolts. The bolt is pressed forward by a double elleptical or curved spring or springs, and like the first bolt of an ordinary lock, is drawn back by turning a spindle with a knob on each end respectively on each side of the door. "The lower part of the bolt is formed for being acted upon "by the key, so that the bolt may be shot farther out for locking "the door; the bolt is kept out by a tumbler which drops into a "notch in the bolt; the bolt has another long notch, in which "the stud of the tumbler lies when the bolt is unlocked. The "bolt is secured from one side of the door without using the key "by means of a piece of metal or lever moved by a spindle and "knob, and locking into a notch, or behind a projection on the "bolt, thus paralysing the bolt and answering the same purpose "as the third bolt in the ordinary lock above mentioned. In "order to render the lock more secure, a piece of metal of a "swan's neck or other suitable form is moved by the tumbler, "and pushed into a hole in the spindle or the follower which is "used for unlatching the door. This spindle cannot then be "used for putting a pressure on the bolt, while the tumbler is "raised by a pick-lock; the tumbler may have a series of pins on "its lower surface to increase the difficulty of acting upon it by "a picklock. The tumbler is pressed down by a curved spring "secured at one point by a stud, and acting against the case of "the lock."

A surface latch to be fixed to the side of a door, and having only one bolt or latch to serve the purposes of an ordinary latch with a small bolt, is constructed in a similar manner. "The "latch turns upon a pin or screw, and is pressed downwards by "a spring, which forces up its back end. The latch is raised by "a follower on a spindle, with a knob on each side of the door, "and it is secured by a lever or piece of metal which locks into "or against it, and paralyses it in a similar manner to that above "described as employed in the mortice lock. The tail of this "lever projects from the latch when in use and lies within it "when out of use, so that it may be seen at a glance whether "the latch is secured or not. The screw on which the latch "turns serves also to connect the back and front plates of the "latch; it passes through a short tube or ferrule, which keeps "the plates apart, and prevents their pinching or impeding the "action of the latch."

[Printed, 4*d*. No Drawings.]

A.D. 1856, February 2.—N° 290.

DAY, John Rock.—This invention relates to "a door lock and "latch which may be placed on the door without cutting away "and weakening the door to the extent which is necessary with "the ordinary lock and latch. The case consists of two plates "of metal fitting on opposite sides of the door and joined "together by a plate lying on the edge of the door. The two "parallel plates lying on the opposite faces of the door are "hollow, and contain the mechanism of the lock and latch. "The bolt and works of the lock are contained in the lower part "of one of the hollow sides of the case; that part of the bolt, "however, which is shot from the lock case and engages in the "door frame is situated midway or nearly so, between the two "sides of the case. The latch is constructed as follows:—I "attach a handle to the case, similar to that used with the "ordinary lift latch, that is to say, a handle consisting of a "vertical shaft, connected with the door by a horizontal piece "at top and bottom. In grasping the handle in the hand the "thumb is pressed upon a thumb plate on the top of the handle; "this depresses a rod which passes through the handle, and acts "upon a lever which withdraws the latch; the door may then be "opened. On removing the thumb from the thumb plate, the "said thumb plate is raised, and the latch projected by means "of a spring." An ordinary door knob having a thumb plate at the top, and acting without rotary motion, may be used instead of the handle, and the action of the latch is sometimes modified.

[Printed, 8*d*. Drawings.]

A.D. 1856, February 4.—N° 304.

AGER, Nathan.—The object of this invention is to connect the spindles of locks and latches to their knobs or handles by simple and efficient means, capable of adjustment as to length, according to the varying thickness of the doors or drawer fronts to which they are attached, each spindle being square in transverse section and screw-threaded as heretofore at the corners. The adjustable knob or handle is made with a hollow stem, by preference bushed with metal. The passage through the bush is first for a certain depth made circular to receive a round nut, it then contracts to a square of a size to correspond with the square of the spindle, and round the front end there is a small flange. On the nut is cut an annular groove externally to receive the end of a small screw, which for the purpose of fixing the knob when adjusted, is screwed into a tapped hole made transversely through the neck of the knob and the bush, so that the spindle and knob have liberty to turn.

The knob at the other end of the spindle is to be fixed on in the ordinary manner.

[Printed, 6*d*. Drawing.]

A.D. 1856, February 5.—N° 310.

PARNELL, Michael Leopold.—The object of this invention relating to the manufacture of locks by special constructional arrangements is "to frustrate the known method of picking lever " locks, and to prevent pressure being obtained with the stump " of the bolt against the levers, by the introduction of false " instruments or picks, and the levers from being tampered with " or raised to their respective gateings by locking them down " into a special chamber cut into each of the levers, and by the " back action of the bolt after the bolt of the lock is locked out " with the key, obtaining two actions in the locking and un" locking of the lock by one revolution of the key."

"In locking . . . . the bolt is propelled forward to its extent, " and then, by the introduction of an arm working upon a pin " affixed to the lock case, and attached to the front part of the " bolt with a pin, upon which it works, or by having a circular " head to the arm working in the bolt, the bit of the key which " acts upon the bolt of the lock, in its further revolution, comes " in contact with this arm so working, and which propels the " bolt a little backward, and causes the stump which is affixed " to the bolt to enter the special chamber of the levers which " prevents pressure, and the levers from being raised to their " respective gateings as before stated."

"In unlocking . . . . the levers are adjusted twice by the key, " in the first place, to allow the bolt to go forward, and to bring " the stump of the bolt out of the special into the original or first " locking chamber, and when this is done the levers have again " to be adjusted to their respective gateings, and by a further " revolution of the key the lock is unlocked."

The lock is fitted with a shield which "closes the keyhole when " *turned, and by its* peculiar construction the top lever of the

" lock, upon the front part of which a pin is affixed, and is " locked down under the rim of the said shield when the lock " is locked; and in no way can that said lever be adjusted, or " released from the said shield without the shield revolves to a " certain point to allow the said top lever to be raised, and by " turning the shield to this point the keyhole is closed against " other instruments or picks, and adds very much to the security " of the lock."

The stump which is affixed to the bolt is cranked or bent to a right angle at its outer end.

[Printed, 10*d*. Drawing.]

A.D. 1856, February 9.—N° 351.

BULLARD, WILLIAM AUGUSTUS.—(*Partly a communication.*)—(*Provisional protection only.*)—"This invention has for its object " an improvement in the construction of instruments for fastening doors. For this purpose a short plate is turned up at right " angles and formed into a point or points, the other end of the " plate is attached by an axis to a button. By this construction, " when the plate is introduced between the door and its post, " the point or points will enter the door post, and the button " on being turned will retain the door from being opened."

[Printed, 4*d*. No Drawings.]

A.D. 1856, February 13.—N° 375.

PARSONS, WILLIAM.—(*Provisional protection only.*)—This invention relates to a mode of connecting and adjusting knobs to spindles, so as to adapt them readily to doors severally of different thickness. "The spindle is formed square, and upon the " angles thereof a thread or screw is cut or formed, upon which " fit two screwed collars placed upon opposite ends of the spindle; " one of these collars has a screw formed upon the outside thereof " for about half its length, which screw fits into a corresponding " hole formed in a piece of metal let into the neck of the knob. " The bottom of this piece of metal has a square hole formed " through the same to receive the square part of the spindle, " and thus to ensure the turning round of the same with the " handle when moved. The aforesaid collar, when screwed into " the knob, projects sufficiently beyond the same to receive the " rose, which fits the plain part of the collar. The other collar,

" which is placed upon the opposite end of the spindle, is simply " screwed on the inside, and is plain on the outside, and fits into " the circular hole in a piece of metal similar to that before " mentioned let into the neck of the knob; said collar is connected to the knob by a screw passed through the neck thereof, " the point of said screw taking into a groove or channel formed " around the collar, and by which the collar and knob may be " readily connected together."

[Printed, 4*d*. No Drawings.]

A.D. 1856, February 14.—N° 380.

MACFARLANE, Walter.—This invention relates to the adaptation and use of cast iron for building houses and other structural purposes, the details of which are prepared in such a manner, that the wall plates, pillars, door and window frames, and other parts are united and fixed by means of dovetailed grooves and feathers, mortises, and tenons. " The hinges are " produced by first casting the moveable part with its pivots or " centres upon it, and by subsequently placing this moveable " part in a second mould, having first coated the working part " of the hinge with clay, sand, glass powder, tar, or other matter. " Thus, when the second mould is cast the entire hinge is completed, the sockets being cast in position upon the pivots " already formed upon the moveable part, and the preparation " of the working parts prevents the setting of the fresh metal " thereon, a good working joint being produced in this manner. " Similarly moveable hinged levers, pulleys, latches, catches, and " other fastenings and details are cast in iron, the moving part " being first cast of such a shape that it may be retained in its " place by collars or projections. This moving part is then placed " in a second mould, and the piece is completed by casting the " stationary part, the working surfaces being prepared as before " to keep them free."

[Printed, 1*s*. Drawings.]

A.D. 1856, March 5.—N° 557.

LAST, Samuel.—This invention relates to the construction of trunks and portmanteaus, and to locks for the same.

The flaps or the three compartments of trunks and *portmanteaus, are so* arranged that when opened out for packing they lay on the same level, and the leather or covering is so fitted on them, that when closed the sides are all flush.

The fittings of the lock consist "of a circular bolt with part " cut away, turned by a stud outside the lock plate, and of a " hasp with a peculiarly shaped bolt, also turned by a stud. " After the bolt on the hasp has been inserted in the lock plate, " for which purpose the aperture in the circular bolt must be " presented to receive it, the circular bolt is turned, and thus " fastens the bolt on the hasp. Unless the circular bolt be pre- " sented in a particular position, known to the user alone, the " lock cannot be opened, thus a secure lock requiring no key is " formed; should further security be required, an ordinary key " may also be fitted to lock the bolt in the hasp."

[Printed, 10*d*. Drawings.]

A.D. 1856, March 6.—N° 566.

BROWNE, Benjamin.—(*Provisional protection only.*)—This invention, relating to spindles and knobs for locks and latches, refers to the mode of constructing the spindles, with a view to the easy adjustment of the knobs to suit doors respectively differing in thickness.

The spindles, which are made of metal in two parts, and the mode employed for connecting them together and mounting the knobs is described as follows:—"I take a square piece of iron, " and one end thereof I reduce and form round, and cut thereon " a thread or screw; I then take another similar square piece " of metal, and drill a hole in one end thereof, and form a thread " therein, corresponding in size to the before-mentioned screw, " and by these means I connect these two short spindles together, " and pass a short square tube over the points of junction thereof. " The other ends of the spindles are left plain, and have two or " more holes drilled through or into them, at say, $\frac{3}{8}$ to $\frac{1}{2}$ an inch " distance apart, more or less, for connecting the knobs thereto " by a screw in the usual way, excepting that in one knob I form " the hole at the end of the knob which comes near the rose in " a slanting direction. The mode of adapting the above com- " pound spindle, say, to a mortice lock, is by first driving the " square tube in the square formed in the lock, and then inserting " the spindle thereinto, withdrawing as occasion may require " one portion of the spindle, so as to lengthen or shorten the

" compound spindle to suit the thickness of the door; and having " done this, I fix the loose handle on to the spindle."

Modifications in the construction and mode of mounting knobs on compound spindles are also described.

[Printed, 4*d.* No Drawings.]

A.D. 1856, March 28.—N° 744.

DANIEL, ALFRED.—This invention relates to the construction of locks and keys, and the points of novelty claimed consist in,—

Casting in iron " keys with the wards in, by laying into the " moulds irons (commonly termed chills) or cores of the required " size and shape necessary to form the wards in the key, and by " which means the tedious and expensive process of cutting the " wards in keys by means of saws, chisels, and other cutting " instruments hitherto used for that purpose is avoided."

The construction of the model patterns employed to make the moulds for casting in iron " mortise, rim, or other locks by " having a series or set of wards differing from each other, and " the patterns used for casting the lock-cases being so constructed " that these wards can be taken out and exchanged at pleasure, " which obviates the necessity of having to use a separate pattern " lock-case for each of the different wards, which may be explained " thus,—say ten, twenty, or any number of different wards can " each one be used in turn in one and the same pattern lock-case; " the pattern ward being made to fit a suitable hole prepared in " the pattern lock-case to receive it, and is secured by small " screws or temporary rivets."

Casting in iron " lock-cases with the holes, pivots, stumps, " and other bearings in the positions required for receiving the " springs, tumblers, bolts, and the cap or cover of the lock."

[Printed, 4*d.* No Drawings.]

A.D. 1856, April 12.—N° 877.

FLINT, WILLIAM BRAGG.—(*Provisional protection only.*)—This invention relates to the construction of fasteners adapted for shutters, windows, doors, and similar purposes, and applicable, amongst other things, for coupling railway carriages. It consists in:—

1st. " Forming the shutter lift or rest for the bar in such a way " that it is not possible for the bar to be pulled either up or down

" on the one shutter without effecting the whole, thus forming a " complete prevention against the too frequent act of the burglar " of freeing and dropping a shutter preparatory to his cutting " the glass.

2nd. " Forming the pin (that usually passes through the end " of the shutter bar and sash frame, to be secured on the inside " by a cotter) in such a way that it has only to be pushed in, " when it will be held on the inside by a spring catch; this is " effected by making the end of the bolt conical, and with a " neck or shoulder, which when placed in its position the conical " end of the pin will press against the end of the spring catch, " forcing it back, to be again thrown forward, when the bolt is " thoroughly in, by means of suitable spring. This contrivance is " susceptible of considerable modification, as, for instance, the " bolt may be round, square, or of an oblong form in its transverse section, and may be double-bevelled at the end, thus " allowing the catch or bearing to press on both sides."

It may be used as a coupling for railway carriages.

[Printed, 4*d*. No Drawings.]

A.D. 1856, April 21.—N° 950.

DORTET, Jules.—(*Provisional protection only.*)—The object of this invention, which relates to the manufacture of padlocks, is so to construct them as to prevent the bolt being acted upon by any improper instrument. Two keys respectively differing in shape may be used, one for closing, and the other for opening the lock. When the key is inserted to open a lock fitted with a double bolt and staple, it takes into a circular groove in the first compartment, and being turned a quarter of a revolution, comes opposite an opening through which it is admitted to the second compartment; it is then turned back until it comes against a bracket-shaped projection, and by means of two parallel pieces presses on a spring, which describes a curve equal to the height of the bolt, and comes back under a stay; the key on completing its revolution comes against a stop, whereby the parallel pieces are left in position, and the bolt is kept down whilst the key is acting. When the pressure of the key ceases, the spring returns to its previous position and closes the bolt. Any attempt to force the lock is detected by a bent leaden pin.

[Printed, 6*d*. Drawing.]

A.D. 1856, April 24.—N° 989.

BLACKET, Frank William.—The object of this invention, which relates to the construction of keys adapted for the locks of safes and other receptacles for articles of value, is to avoid the necessity for carrying about bulky keys, and to fix the locks such a distance from the keyhole, that the difficulty of picking shall be materially increased. The keys are made in two parts, one part consisting of the bow, handle, and shank which, when unemployed may be hung up in any convenient place, and the other part of the ward-bit, which is arranged to be readily fitted and secured to the shank when required for use, and, when out of use, to be consigned to the pocket and carried about without inconvenience.

The locks of safes and similar receptacles are fixed at the back of the safe or at the rear of the door, and the ward-bit of the key, which is attached to a key shank of unusual length is, when passed into the keyhole, guided in the right direction by a tubular passage. In the construction of these locks rock levers are employed.

[Printed, 10*d*. Drawings.]

A.D. 1856, June 18.—N° 1436.

TUCKER, Walter Henry.—This invention relates to additions to or modifications of ordinary double action tumbler locks and latches with fixed tumbler stumps, consisting:—

1st. Of an arrangement for preventing the tumbler stump binding the tumblers when end pressure is applied to the bolt, such pressure either raising or depressing the tail of the bolt, so as to bring it against a fixed stop and leave the tumblers free.

2nd. An arrangement of a movable tumbler guard to form a yielding resistance to prevent bringing the tumbler stump into contact with the edges of the gatings, until the whole of the tumblers are adjusted for its passage through them.

3rd. Causing end pressure when applied to the end of the bolt so to move the tumblers, that they become fixed to a stud or stop in the lock case or to each other, and cannot be adjusted.

4th. Causing end pressure on the bolt to bind all the tumblers whether correctly adjusted or not.

5th. So arranging a lock that end pressure on the bolt shall derange one of the tumblers, and thereby bar the passage of the tumbler stump.

6th. Causing the talon of a lock bolt to recede if end pressure be applied to the bolt.

7th. Causing end pressure so to raise or depress the tumbler stump by attaching it to a traversing tumbler, that the gatings in the tumblers will not correspond.

8th. So arranging a detector in locks that it shall be thrown by end pressure, whether the tumblers be overlifted or otherwise.

9th. Constructing a spring lock or latch with tumblers and one bolt only, in a manner to remove the resistance of the spring to the key.

10th. So making a spring lock or latch, that whilst the key remains in it cannot be opened.

11th. Preventing the removal of the key from a lock unless the bolt be fully thrown, and secured by the falling of the tumblers.

12th. Making, by the use of a traversing tumbler, a self-locking spring lock with only one bolt.

13th. So constructing a flush bolt chest or desk lock that both bolt and tumbler shall be combined in one piece.

[Printed, 6*d.* No Drawings.]

A.D. 1856, July 1.—N° 1544.

NEWTON, Alfred Vincent.—(*A communication.*)—(*Provisional protection only.*)—This invention, relating to the construction of door locks, consists:—

1st. In so arranging the arbor of the lock in relation to the bolt, that the latter may be operated by either drawing, pushing, or sliding the arbor, without turning it.

2nd. The use of a bolt turning on a center to be operated by a thrust of the arbor, which is connected to the bolt by a rock lever or other suitable contrivance.

3rd. Employing in the construction of locks a series of sector tumblers, which are so fitted between sliding plates and arranged with a spring, that the moving or adjusting of a single tumbler is prevented, and, it is stated, the lock rendered unpickable, one of the tumblers being made elastic to bear upon an oblique ledge. By this means, if the plates are forced inwards, the tumblers will be so pressed together that to operate upon them separately is made impracticable.

[Printed, 4*d.* No Drawings.]

A.D. 1856, July 18.—N° 1690. (* *)

LEUCHARS, WILLIAM.—" Improvements in locks for travelling " bags," applicable also to " portfolios, despatch boxes, and other " similar receptacles." This invention consists " in adapting to " the cases of Bramah and Chubb locks certain novel mechanism " in connection with the bolt of the lock," so that the said bolt may be " either used by hand or operated upon by the key of the " lock, that is to say, the mouth of the bag may be closed without " locking if necessary."

The lock is composed of (1) back and front plates, (2) a plate for connecting the lock to the material of which the bag is made, (3) a hasp fixed to the bag in the usual way, (4) a plate " affixed " to the upper part of one side of the metal frame of the bag," and pierced with a hole through which a part of the main bolt passes; the top of this part carries a knob, by which the bolt " can be drawn back by hand," a spring " keeping it always " forced forward;" (5) " the barrel of an ordinary Bramah lock " operated upon by the key of the lock in a circular direction," and carrying a pin which lifts up and forces down (6) an auxiliary bolt for locking and unlocking the main bolt.

In the drawings may be seen a lock " adapted to a Chubb's " lock;" also a modification of the above described lock, in which the piece employed for drawing back the main bolt by hand instead of being vertical, extends from the side of the bolt. The piece passes through a hole in the front plate, and it is notched to allow the bolt " to be drawn back sufficiently far to " disengage it from the hasp."

[Printed, 8*d*. Drawings.]

A.D. 1856, July 19.—N° 1706.

WHITEHOUSE, JOHN, junior. — This invention relates to making, mounting, and spindling knobs applicable for doors and other purposes.

1st. The large or spherical part of the knob may be of metal, glass, porcelain, ivory, wood, or other suitable substance, secured to a metallic neck by a central pin, which passes direct through the knob, a boss or washer being rivetted or otherwise fixed on the front end or face.

2nd. Relates to mounting such knobs when applied to sash fasteners, cloak pins, hat hooks, and the like; the end of the pin which passes through the knob may be screwed and the knob secured by a small nut, or recourse may be had to rivetting.

3rd. Mounting knobs or handles on spindles in a manner to adjust them so as to suit variations in the thickness of doors. The knob on one side of the door is fixed on one end of the spindle, which at the other end is square and screw-threaded at the angles. A nut in the neck of the knob screws on the spindle, and a plate with liberty to slide but not turn on the spindle is screwed to the base of the knob, and is secured when the length is adjusted by a transverse screw.

[Printed, 8*d*. Drawings.]

A.D. 1856, July 30.—N° 1798.

CARON, Felix.—(*Provisional protection only.*)—This invention relates to adjusting and fixing knobs and handles on door lock spindles, and to finger plates.

One handle is formed to slide on the spindle, and secured by a slide passed crosswise through the neck of the handle into notches cut in the spindle, and hid from view by the "scutcheon plate" which is fixed to the door by screws, and hidden by a porcelain or other ornamental covering. The square angles at the opposite end of the spindle are screw threaded, and the knob is screwed on a certain distance to suit the thickness of the door; a plate with pins projecting and having a square hole slides on the spindle, and the pins enter holes in the face of the knob to prevent it from turning. By this means the knobs or handles are fixed and adjusted to suit the thickness of the door.

Finger plates are attached to hooked projecting catches fixed to the door, the back of the plates having corresponding holes to receive the catches; these holes are so under-cut that the hooked part of each catch passes under the back surface of the plate when the latter is pressed to the door and caused to slide in the direction to engage the catch.

[Printed, 4*d*. No Drawings.]

A.D. 1856, August 7.—N° 1860.

WEBER, Lionel.—(*Provisional protection only.*)—The object of this invention, which relates to the construction of keys, is to prevent the opening of door locks from the outside by means of pliers or other instruments. To this end an extra movable piece or "protecting appendage" is fitted to swivel on that end or prolongation of the shank of the key which extends beyond the ordinary ward bit, and this piece fitting into the keyhole, bars all access to the lock from the outside; it remains in the same position whilst the key is turned, but is capable of being withdrawn therewith.

[Printed, 6*d*. Drawing.]

A.D. 1856, August 8.—N° 1870.

GORSE, WILLIAM.—(*A communication.*)—This invention relates to a door fastener, which can only be operated from the inside of the room, or at that side of the door to which it is applied. It consists "of two plates of metal jointed together so as to turn " upon one another, one of the said plates being longer than the " other. The loose end of the longer plate is serrated and turned " at right angles, and the loose end of the shorter plate is also " turned up; on the inner face of the longer plate, or on another " parallel plate lying thereon, an incline or wedge is formed. In " using the fastener, the short arm is turned aside from off the " long arm, and the said long arm is placed against the inner " face of the door frame, the serrated end bearing against the " said door frame; the door is then closed, and as it closes it " presses upon the wedge and forces the teeth into the door " case. When the door is quite closed the short arm is turned " upon the long arm, and the end of the said short arm bearing " against the door, prevents the said door from being opened " until the said short arm has been restored to its original position, which can only be done by some one in the room. A " second short arm may be situated on the outer side of the long " arm to act as a guage in placing the fastener against the door " case."

[Printed, 6*d*. Drawing.]

A.D. 1856, September 5.—N° 2066.

JOHNSON, JOHN.—The object of this invention, relating to railway carriages, is to provide means of communication by the aid of small hollow shafts connected by flexible tubes and links, and extending from carriage to carriage throughout a train; it constitutes a system of signalling orally and otherwise in case of danger or necessity, and provides means for simultaneously locking or unlocking all or any number of the doors of the carriages composing a train. To this end, "at the bottom, side, or top of " the door frame of the carriage a spring lock or catch is fitted to " a bar, bolt, or latch, which is made to turn, drop, or shoot into " a socket or staple in or upon the door. These bolts are actuated " by the motion of the lever or links, which is communicated " thereto through suitable small connecting rods and cranks. " The hollow shafts are mounted in sockets fixed to the carriage, " and are capable of being turned round upon their axis either to " the right or left; they run the entire length of the carriage, " and when connected at the ends by the flexible tubes and links " extend from end to end of the train. The shafts have small " flexible tubes suspended therefrom or fitted thereto, and terminating with a mouth-piece, one of these being placed or fitted " in each carriage or compartment, as the case may be."

"The whole of the doors are locked and unlocked simultaneously by turning the shafts first to the left and then back " again, and separately by turning them to the right and back " again, or vice versa."

[Printed, 4*d*. No Drawings.]

A.D. 1856, November 5.—Nº 2601.

HILL, HENRY.—(*Provisional protection only.*)—This invention relates to locks for bags and such like articles. The bolt in locks in use and most approved, is drawn down by pressing with the thumb or finger nail upon the key pin, the bolt being single shot, and when double shot, the key is first used to bring it back to single shot.

Instead of this plan, the bolt is to be acted upon when only single shot by end pressure on a stud, which projects from the top of the lock at right angles or nearly so with the lock spindle, and is connected to the bolt, the key as before being required to double shoot the bolt, or to bring it back to single; the key can then remain in the lock whilst the unlocking is completed by pressure on the stud.

[Printed, 4*d*. No Drawings.]

A.D. 1856, December 11.—Nº 2944.

MILES, WILLIAM PLAYER.—(*A communication from Monsr. Motheau.*)—This invention relating to locks and fastenings, has

has its object the attainment of greater security in respect thereto. To this end "the parts are so arranged that a piece of paper, or "of card, or of other material may be introduced over the key-"hole, and under a cover or plate of one face or side of the lock "or fastening. The piece of card or of paper or of other material "so introduced has formed in it an opening or passage for a bolt "or instrument to pass through it, and such bolt also passes "through corresponding openings in the case of the lock or "fastening, so that when the bolt or instrument has been intro-"duced, and is locked or fastened by a spring catch or holding "instrument, the keyhole cannot be got at without destroying or "defacing the piece of card or of other material covering the "keyhole, as the covering material cannot be removed without "unlocking or unfastening the bolt or instrument which is passed "through the covering material, and such bolt or holding instru-"ment cannot be withdrawn without being unlocked or released "by the introduction of the key."

[Printed, 6*d*. No Drawing.]

A.D. 1856, December 26.—N° 3066.

NEWBURGH, Sidney, and STEINHART, Charles.—(*A communication.*)—(*Provisional protection only.*)—This invention relates to the construction of keys, and to means for preventing the picking of locks. The key is made in two parts, one consisting of the loop or bow and part of the shank, and the other of the remaining part of the shank, which carries expanding arms or ward pieces, and remains in the lock, the two parts of the shank when the key is required to act being screwed together or otherwise united.

"The key in its entire state having been used to shoot the "bolt or bolts of the lock to which it belongs is divided by "unscrewing the loop and lower part of the spindle, and this "part is removed from the lock. During the unscrewing, the "arm or arms, before mentioned, flies or fly out from the upper "part of the spindle, and engages or engage into a recess or "against a stop made for their reception in the lock. The bit "and top of the spindle will thus be retained in the lock, and "will prevent its being picked until the hoop and remaining "part of the spindle are again screwed on to it, and during "*the action of* screwing, the arm or arms is or are withdrawn

" and returned to their original position, when the lock can " be opened."

[Printed, 4*d*. No Drawings.]

1857.

A.D. 1857, January 5.—N° 37.

BRUNDISH, Andrew.—This invention relates to the mounting of knobs, and to the construction and mounting of roses, made of china, glass, or other material, and to be used in connection with locks, latches, and such like fastenings. These roses have the configuration of a ring, the inner surface inclining to a conical form to receive a hollow metal cup, which holds the rose and is fixed to the door by screws; the space in the center of the cup is occupied by a loose collar, wherein there is a square hole, through which the lock spindle passes; the collar which is free to turn, is held in the cup by an annular shoulder that fits to the interior, and the outer end of the collar which projects in front from the center of the rose, is screw threaded to receive the knob, the neck of which internally is tapped with a screw of corresponding thread, so that in fixing, the knob is only required to be screwed on to the end of the collar up to the face of the rose. A small screw passing transversely through the neck of the knob, may be tapped into the side of the collar to secure it when the knob is screwed up to its place.

[Printed, 6*d*. Drawing.]

A.D. 1857, January 8.—N° 68.

HARRIS, James.—This invention relates to an apparatus and lock, capable of being operated at a distance by means of compressed air. The apparatus consists of an air pump, comprising two cylinders fitted with air-tight pistons and valves, or of elastic air-tight expansible cylinders secured to ends of wood or other material, furnished with the necessary inlet and outlet valves, and having communication with the lock or instrument to be operated by means of metallic or other pipes. The lock with which the apparatus is in communication, contains a small cylinder and an air-tight piston which is connected to the bolt, and another cylinder and piston which operates the tumblers; there is a strong spring that forces out the bolt, and a catch or tumbler to hold it back when unlocked, which is effected by the action of the air pump operating the pistons in the cylinders respectively, one adjusting the tumblers, and the other forcing back the bolt against the spring. When required to be locked, extra pressure is put on by the pump to disengage the catch or detention tumbler, so as to place the bolt under the control of the spring.

Latches for gates and doors are operated by this apparatus in a modified form, as also taps, valves, signals, bells, &c.

[Printed, 4*d*. No Drawing.]

A.D. 1857, January 15.—N° 120.

HOBBS, Alfred Charles.—The object of this invention relating to the construction of locks and latches, is by shaping those parts of the lock or latch which are operated by the spindle or handle, and are termed the follower and crank player, to such a form as will impart to the latch an easy motion, and avoid in a great degree the usual friction, consequent wear, and deterioration. To this end, the horns of the follower have given to them a curvilinear form fitting into that of the crank, and the parts are so arranged "that their points when in a state " of rest shall be in front of a line drawn from the fulcrum " . . . . to the centre of the point of force." By adopting the curvilinear form, it is stated "that a rolling instead of the usual " rubbing action is given at the points of contact."

[Printed, 6*d*. Drawings.]

A.D. 1857, March 3.—N° 620.

LEUCHARS, William.—" Improvements in locks for travelling " bags, portfolios, despatch boxes, and such like depositories." This invention is an improvement upon the one for which Letters Patent were granted to Wm. Leuchars, dated July 18th, 1856, No. 1690; it "consists in connecting the bolt of the lock either " directly or indirectly with the nozzle thereof in which the " keyhole, is made, thereby dispensing with the piece or knob " described and represented in the Specification of the aforesaid " former patent, ... and rendering the pulling back of the " bolt comparatively a secret operation."

The lock is of the following construction :—The nozzle is held in position between the lock plates by aid of a small flange formed on it for the purpose, and on the flange is a projecting piece having a pin fixed in it. In the front plate is an opening in which the projecting piece moves. The pin takes into a notch in the lock bolt, and the tumbler is operated upon by the pin of the revolving part of the lock. In "the locking movement" a screw in the bolt comes against the top of the tumbler, and is arrested thereby, so that the bolt cannot then be drawn back by hand.

" By the above mode of combining the nozzle of the lock with
" the other parts thereof, the bolt may be drawn back by simply
" turning said nozzle partly round" by the finger and thumb.

[Printed, 6*d*. Drawing.]

A.D. 1857, March 25.—N° 827.

COLLINS, William Henry.—This invention relates to a mode of attaching door knobs to spindles, in a manner, capable of ready and easy adjustment, as to the required length in relation to the thickness of the door. To this end the hole in the loose knob is made square to receive the end of the square spindle, which on the angles is screw threaded; there is also a recess in the neck of the knob to receive an annular nut or "cylindrical screw box," that is screwed on that end of the spindle which protrudes through the door, and when the nut is adjusted, so that the spindle will work easily without looseness, the knob is put on and fixed by a small screw, which passes through the shoulder of the knob and screws transversely into the nut.

A modification, requiring the adjustable knob first to be screwed on to the spindle end, and the length regulated by a slide before the other knob is fixed on the opposite end is described. Other modifications are sometimes resorted to.

[Printed, 6*d*. Drawings.]

A.D. 1857, April 1.—N° 895.

ILES, Charles.—(*Provisional protection only.*)—The object of this invention, relating to door bolts, consists :—

1st. In throwing the bolt in or out of fastening by means of an oblique incline through the bolt case, taking the form of a spiral slot, wherein the handle of the bolt works. When the handle is raised it follows the incline of the slot and advances the bolt in one direction, and when the bolt is required to be withdrawn the handle is depressed and the bolt moves back. The arrangement may be modified by forming a helical slotted recess in the bolt, to engage with the end of a stud fixed projecting from the bolt case.

2nd. Coating the cases and making parts of the handles of vitreous, semi-vitreous, or plastic substances, such as earthy cements or compositions, which harden by drying or otherwise, do not corrode, and admit of ornamentation.

[Printed, 4*d*. No Drawings.]

A.D. 1857, April 2.—N° 916.

MORRISON, Duncan, and LILLEY, Samuel.—The object of this invention, relating to locks, consists in obtaining increased security by a contrivance for making the interior of locks inaccessible on the withdrawal of the key. To this end, the entrance to the lock is made through a small cylindrical tube, screw threaded internally, and constituting the keyhole. The key is in two parts; the ward-bit which acts upon the mechanism of the lock always remains inside, the shank of the key being tubular and screw threaded internally to receive a screw on the ward-bit, and externally to engage with the screw threads internally cut in the tubular keyhole. The key stem, when the act of unlocking is about to be performed, is screwed, say, to the right through the tubular keyhole, and at the same time it attaches itself to the ward-bit by screwing on to it, and when the outside screwed part of the key stem is fairly through the tube, the ward-bit is made to act upon the operative parts of the lock by turning in the usual way. When desired to withdraw the key stem after locking, it is, whilst being drawn out, turned to the left, so as to unscrew through the tube, bringing with it the end of the ward-bit, which, being screw-threaded externally, enters the keyhole tube, and remaining there bars the entrance, having become detached or unscrewed from the stem, which is then withdrawn. The invention is applicable to locks generally.

[Printed, 8*d*. Drawing.]

A.D. 1857, April 15.—N° 1070.

SAFRAN, Jacob.—This invention, relating to fastenings for drawers, has for its object the simultaneous locking or bolting the whole number of drawers in a chest, writing table, or desk, to which it is stated the invention is principally applicable, by the pushing in or closing of one of the drawers, which alone is furnished with a lock. Inside the framework at both sides, or on one side only, is fitted a vertical rod, free to slide up and down, in contact with a side of each of the drawers; these rods are furnished with a series of lateral projecting nibs, one nib on each rod to correspond with each drawer. The rods rest upon springs, which are free to press them up constantly when the one locking drawer is slightly open, and then all the drawers are at liberty, but when the locking drawer is closed, the upper end of each rod is acted upon and forced down by a spring or piece connected with the locking drawer, which causes the nibs severally to slide into small recesses formed in the sides of their respective drawers, so that the whole set of drawers by this one movement of the rod or bolt becomes fastened, and will remain so until the locking drawer is again slightly opened or withdrawn. By this contrivance the locking or unlocking of each drawer separately is avoided.

[Printed, 8*d*. Drawing.]

A.D. 1857, April 18.—N° 1096.

BRANDON, David Hunter. — (*A communication.*) — (*Provisional protection only.*)—This invention, relating to fastenings for shutters, windows, doors, etc., consists simply of a bolt which has a slot at the inner end to receive a cotter or catch, that is free to slide up and down an opening in a plate fixed to the wall inside. The ends respectively of the bolt and the cotter are so fashioned to an angle, that when the former is pushed forward it lifts the cotter, which rides upon the bolt end until it falls into the slot, or is forced in by a spring. When required to withdraw the bolt, the cotter is raised by a knob or button attached thereto, the bolt, when the cotter is free, being pushed back by prolonging the upward movement of the knob.

[Printed, 4*d*. No Drawings.]

A.D. 1857, May 6.—N° 1284.

NEWTON, William Edward. — (*A communication.*) —The object of this invention, relating to locks for doors, safes, and other purposes, is simplicity and economy in their construction, at the same time that they are rendered difficult to tamper with. In these locks "a series of rotating cogged tumblers are moved " at right angles to the line of motion of the bolt by means of a " slot in the bolt, or any equivalent thereof, operating on the " shaft or spindle of the tumblers, whereby the cogs on the said " tumblers can be made to engage the cogged racks on the key " slides previously set by the key before the stop pin on the " bolt leaves the slots in the tumbler, and will so remain engaged " while the bolt continues its movement to carry the said stop " pin to some distance beyond the periphery of the tumblers, so " that in any attempt to pick the lock the said stop pin shall not " rest against the periphery of the tumblers to admit of feeling, as " it is termed, to bring the tumblers in succession to the required " position, to allow the lock to be picked.

" In combination with the method of operating the tumblers " by the throw of the bolt, and giving to the bolt the capacity to " move after the tumblers have been engaged with the key slides " to carry the stop pin some distance beyond the periphery of " the tumblers, a stop or holdfast is employed, and operated by " the bolt to lock or hold fast the key slides or tumblers before " the stop pin on the bolt reaches the periphery of tumblers, " whereby the slides and tumblers, if not previously arranged by " the proper key, will become locked in their disarranged condition before the stop pin on the bolt can reach the periphery " of the tumblers to feel when the tumblers are brought to the " required position by a pick.

"The bit of the key is formed of a series of sector pinions, " which may be shifted to change the combination or permutation, " and is used in combination with a series of cogged rack slides " for operating the tumblers.

" In combination with the arrangement for throwing the bolt, " or any equivalent therefor, there is a contrivance for holding " the bolt, so that it cannot be forced back.

" The next improvement relates to the combination of the " non-cogged sectors, and the cogged sectors on the key bit with " the cogs and projections on the tumbler slides, whereby the " said slides are controlled by the key bit.

" An intermittent motion is imparted to the key bit, and the " same is stopped, while the mechanism which imparts such " motion continues to move by means of the wheel and pinion,

" having their engaging peripheries constructed in a peculiar
" manner, or cut away at parts for this purpose."

[Printed, 1*s*. Drawing.]

A.D. 1857, May 7.—N° 1289.

RAMIÉ, Charles William.—This invention relates to a mode of attaching the loose knob to the spindles of door and other locks and latches, which is effected in such a manner that the knob is easily adjusted to suit the thickness of any door, and is not liable to become loose on the spindle end. The knob at one end of the square spindle is, as usual, permanently fixed; at the opposite end the spindle is screw threaded at the angles. Fixed in the loose adjustable knob there is a metal bush, large enough at the opening to receive a nut, its inner end having a square hole corresponding with the size of the spindle end, so that when the knob is turned the spindle is actuated thereby; the nut has liberty to revolve, but is prevented coming out of the bush by a flange. At its outer end the nut carries an escutcheon plate or washer having a radiating projection or wing, whereby it is turned, and by operating the nut effects the correct adjustment of the knob; when this is done, a small pin is driven through a hole in the projecting wing of the washer into the wood work of the door, so that no further movement of the nut or loosening of the knob can take place.

[Printed, 6*d*. Drawing.]

A.D. 1857, May 12.—N° 1331.

COTTERILL, Edwin. — (*Provisional protection only.*) — The object of this invention is to prevent the picking of ordinary and other locks and fastenings, to effect which is inserted in the keyhole an instrument or apparatus consisting of two metal plates jointed together like an ordinary measuring rule, excepting that their edges do not touch, and in each contiguous edge there is a notch, the two being relatively opposite each other; "a square
" rod is situated between the two plates of metal, and a button
" slides upon the said rod. By turning the rod the button may
" either be made to lie in the same plane as the plates of metal,
" the said button entering the notches in the edges of the plates,
" or the said button may be turned at right angles to the plates.

" When the button is in the former position the plates may be
" freely inserted into and withdrawn from the keyhole; but if,
" when the plates are passed through the keyhole, the rod be
" turned so as to bring the button at right angles to the plane
" of the plates, the said plates can no longer be withdrawn from
" the keyhole. The button is adjusted on the rod on which it
" slides to such a distance that, when the plates are put to their
" full distance through the keyhole, the button passes through
" to the other side of the door, and, when turned, prevents the
" withdrawal of the plates. A small lock is situated on the
" unjointed end of the plates, and is connected with the rod, so
" that on turning the key of the lock the said rod is turned, and
" places the button at right angles to the plates. In using the
" instrument, the button is first adjusted on the rod to the
" thickness of the door, the instrument inserted into the keyhole,
" and the key of the small lock turned. The instrument is thus
" fixed in the keyhole of the door lock, and can only be removed
" by the unlocking of the small lock."

[Printed, 4*d*. No Drawings.]

A.D. 1857, May 13.—N° 1352.

AGER, NATHAN.—(*Provisional protection only.*)—This invention relates to a mode of so connecting the spindles of door or drawer locks and latches with their handles or knobs that the latter or the loose knob, can readily be adjusted and fixed on the spindle at any point of length required to suit the thickness of any door or drawer. The knobs or handles are made with hollow stems or necks, the opening being square and of a corresponding size, to suit the dimensions of the square spindle, which can only enter but not turn therein. One of the knobs or handles is permanently fixed on one end of the spindle in the usual manner. The other end of the spindle is screw-threaded at the angles to receive a circular nut, which is screw-threaded internally to engage with the screw threads on the angles of the spindle, and externally is turned to receive a flanged collar that slides over the nut and screws on to the end of the neck of the knob which is of corresponding size and screw-threaded externally. The circular nut is first adjusted to its place according to the thickness of the door and then the end of the knob is tightly drawn up to the face of the nut by screwing on the collar.

[Printed, 4*d*. No Drawings.]

A.D. 1857, May 13.—Nº 1356.

ALDERTON, William Adams.—(*Provisional protection only.*) —This invention, relating to the spindles of door and other locks and latches, has for its object a secure mode of attaching the knobs or handles without the use of the small set screw, which ordinarily is transversely screwed into the neck of the knob, its end coming against the spindle side. Both ends of the square or polygonal spindle are screw-threaded at the angles, the knobs are respectively screwed thereon to an adjustable length and each is fixed there by means of a collar and washer. "The collar " which is first put on to the spindle has a square hole in it, " fitting the square portion of the spindle, and carries a pro- " jection or stud on its outer face, fitting into a corresponding " slot in the washer, which is next placed on the spindle."

"This washer has also an enlarged opening in it, which is " square at one end to fit over a corresponding square boss on " the inner face of the knob, whilst the other end of the opening " is round or is expanded sufficiently to admit of the square " boss turning round therein freely. The collar and washer " having been properly placed upon the spindle, that is, with the " stud of the collar inserted into the corresponding narrow slot " in the washer, the knob is screwed on until it is close up to " the washer, which latter must be held in such a manner as to " present the rounded part of its opening to the square boss on " the knob, for the purpose of allowing the knob to be screwed " close up to the washer; whereupon the washer is depressed, " so as to slide the square portion of the opening over the square " boss of the knob, and thus effectually lock it upon the " spindle."

[Printed, 4*d*. No Drawings.]

A.D. 1857, May 30.—Nº 1532.

SALLES, Jean.—(*Provisional protection only.*)—This is an invention of apparatus applicable to locks for safety purposes. It "consists in prolonging the bolt or one of the bolts of a lock " outside the lock, or in connecting a tail piece with a hole with " a cutting inner edge to the bolt, in such manner that the bolt " or bolts cannot be withdrawn without the tail piece being " moved. I attach to the lock a stationary plate with an aperture " through it, and when the bolts are shot the hole in the tail

" piece or prolongation coincides with the hole in the stationary " plate. I then pass a lead rod through the holes in the tail " piece and stationary plate, and stamp up in a press or with a " punch, a head on both protruding ends of the rod, and at the " same time impress thereon any required device. In order to " open the lock it is necessary to cut off the lead bolt, and for " this purpose I employ a fork, one of the prongs of which " entering through a slot made for the purpose in the lock plate " behind the upper end of the tail pieces drives it forward, causes " the cutting edge on the inside of the aperture in the tail piece " to cut the lead bolt, and opens or allows of the bolts being " opened or withdrawn."

"This lock will be found (among other uses) particularly " applicable for securing post office and mail bags, and for fixing " on treasure and bullion cases. I have stated that I employ " a lead rod, and I do so by preference, but a rod of gutta percha " or other suitable substance may be employed."

[Printed, 4d. No Drawings.]

A.D. 1857, June 26.—N° 1796.

PARSONS, William.—The object of this invention is the fixing of knobs or handles on the spindles of locks or latches in such manner that they are fixed securely, readily adjustable to suit doors of different thickness, and easy of removal.

"The fittings at each end of the spindle are different. In the " door handle or knob for one end of the spindle, I insert a metal " mounting tapped with a female thread, and in the shoulder of " the mounting there is formed a square, octagonal, or other than " circular recess, for receiving a square or correspondingly shaped " stop. The spindle is square, but has a male thread to correspond with the female thread in the mounting cut on the edges " thereof. The square top fits the square of the spindle, and it " will be understood, that when the stop is in the recess in the " shoulder of the handle mounting, the spindle cannot be rotated, " and consequently cannot be screwed into or out therefrom; but " on removing the stop from the recess, the spindle may be driven " into or drawn out of the mounting. In order to prevent the " stop from coming out of the recess when not required, there is " a nut upon the spindle, threaded on the inside, which is screwed " down upon the stop. . . . . The opposite end of the spindle may " terminate in a screw, over which the mounting in the remaining

" handle may be screwed, and held or fixed by a pin or screw " passed through a hole made in the neck of the handle, and in, " or in and through a corresponding hole cut in or through the " spindle, or a mounting may be screwed on to that end of the " spindle now being alluded to, the outer end of this mounting " being in the form of a screw; the handle is screwed on this " mounting until its shoulder comes against a collar formed " thereon, where it is retained by a tapering pin passed through " corresponding apertures in the handle or handle mounting and " the collar, or the handle may be fixed by a screw or other like " arrangement."

[Printed, 8*d*. Drawing.]

A.D. 1857, July 13.—N° 1942.

HINKS, JOSEPH LESTER, and DAY, JOHN ROCK.—(*Provisional protection only*.)—This invention relating to locks and latches, and to attaching knobs to the spindles of locks and latches, consists in,—

"Constructing a lock in which a central tube, into which the " key enters, is surrounded by a series of parallel tubes, in each " of which is a rod pressed upwards by a spring. At the top of " the tubes is a fixed plate, and a similar plate is fixed at the " bottom of the tubes. The rods engage in holes in the upper " plate, and prevent the central tube from turning; but when " the key is introduced and pushed home, it disengages the rods " from the plate, and the key and central tube can turn and act " on the bolt. If a false key is introduced, it either fails to " disengage the rods from the upper plate, or causes them to " engage with the bottom one, and fails to liberate the central " tube."

"Constructing latches, having cranked bolts pressed home by " coiled springs, the bolt being connected by links with the " follower. In rim locks, the works, with the exception of the " cranked end of the bolt, are contained in a flat case on one " side of the door; and in mortice locks the works are inserted " in a mortice in the door. A small lock of the ordinary con- " struction locks the latch which thus acts as a lock and latch. " The key may act on either side of the bolt, and a separate " hole made for the key on either side of the door, neither of " the *keyholes passing* through the door. The keyhole is closed

" by two plates at the back of the escutcheon, which plates are
" pressed back on the introduction of the key."

"In attaching knobs to lock and latch spindles, a spring catch
" on the spindle is pressed back and the knob screwed to the
" proper distance on the spindle; the catch is then liberated,
" when it engages with the knob, and the turning of the knob
" turns the spindle. The position of the knob on the spindle
" may be adjusted by a wedge instead of a screw."

[Printed, 4*d.* No Drawings.]

A.D. 1857, July 28.—N° 2059.

DORTET, JULES, and DENIS, ANDRÉ BARTHELEMY.—This is an invention of a "safety padlock," adapted for securing mail bags, and other purposes.

"The body of the lock consists of a box holding a spring catch
" and a hinged plate carrying two raised projections, which when
" closed form with the top of the box a continuous circular rim.
" This plate on being pressed down is kept in position by a spring
" catch, and is intended to receive a wax or other seal within the
" raised rim; the hasps or bolts of the lock fixed upon a metal
" plate connected by chains to an address plate for post office pur-
" poses, and then to the body of the lock by other chains, or to
" the body of the lock direct, are passed into the lock and moved
" sideways, when the spring catch will become engaged, and so
" fixed in the bolt plate that the lock cannot be opened or the
" spring catch forced back without the seal being broken. The
" seal may be in wax, soft metal, or other suitable substance.
" To open the lock, a pointed instrument is introduced into an
" aperture or hole in the top of the lock and pulled back,
" whereby the spring catch is withdrawn, the seal broken, and
" the lock thereby opened.

[Printed, 8*d.* Drawing.]

A.D. 1857, August 14.—N° 2169. (* *)

DRAPER, SAMUEL.—"Improvements in the manufacture of
" handles and fastenings for doors of railway and other car-
" riages."

According to this invention the stem or spindle of the handle is formed of cylindrical rod iron, and may be either of the same diameter from end to end, or be flattened on two sides as far as the bottom of the tongue or fastening button, which is placed upon this spindle. The tongue or button is formed in three parts, the main part having at the end by which it is fixed to the spindle two plates, one on each side, these plates being furnished with projections by which they sustain a friction roller which acts against a suitable spring. The handle itself is formed by a cross-bar of iron screwed upon or fixed to the end of the spindle, there being placed over this a hollow shell of sheet brass or other suitable metal, and a tube of similar material being inserted into the shell about midway of its length, and covering a portion of the spindle, a pin passing through both tube and spindle, and fluid metal being run into and filling up the spaces in the interior of the parts. When the tongue is to work within a case or lock let into the door the patentee uses by preference a flat spindle, the hole in the tongue or fastening button corresponding therewith, " which may be made by two side rods, fastening them " and the spindle together by the running in of the fluid metal " as before named, or if they are made in the ordinary way by the " handle being cast in solid brass, &c., so that the flat part of the " spindle may effectually move the tongue or fastening button " with its projected roller. The tongue or fastening button with " its projection to hold the friction roller can be made in one " piece at a greater expence."

[Printed, 6*d*. Drawing.]

A.D. 1857, September 24.—N° 2472.

SAUNDERS, Thomas.—(*Letters Patent void for want of Final Specification.*) — This invention of a " tumbler key and lever " tumbler lock " is briefly described as follows :—

"The key is a barrel key, and consists of several tumblers " enclosed in a case, so that when the key is put into the lock " the pin of the lock is so formed that on turning the key round " the tumblers of the key fall into their proper position, and " act in unison with the tumblers of the lock. The invention " prevents the possibility of any impression or dimensions being " taken of the key."

[Printed, 4*d*. No Drawings.]

A.D. 1857, November 24.—N° 2937.

SCHLOSS, Joseph.—This invention relates to a lock suitable for carpet bags and such like purposes, and adapted for locking with a key or closing as a spring catch lock by bolting only. The case of the lock, having a front plate with keyhole, is to be fixed by rivets to one of the sides of the metallic frame, and the catch or hasp is fixed to the other, the two sides being jointed together in the usual way. The lock is fitted with a crescent formed "tumbler or trigger plate," to which pressure is applied for the purpose of opening the bag when it is merely bolted, the plate operating upon the spring which catches the hasp. The locking is effected by half turning the key, whereby the bolt is so brought under the trigger plate as to prevent its being depressed by pressure, and the unlocking is effected by taking a half turn in the opposite direction.

[Printed, 6*d*. Drawing.]

A.D. 1857, December 24.—N° 3160.

HART, George William.—This invention relates to the construction of locks and keys. These locks are furnished with a series of tumblers or levers, as in an ordinary lock, excepting that in the tumblers there are no gates for the passage of a stump, but instead thereof the tumblers are so arranged that when moved by the key for the purpose of withdrawing the bolt each tumbler lifts a slide, and each slide is fitted to work up and down in guides attached to the bolt, and is furnished with a projection which, when all the slides are properly ranged and the bolt shot back by the key, enter corresponding recesses in parts attached to the lock plate, otherwise, when the arrangement of the slides is incorrect, the parts come in contact and the bolt is not free. The slides have teeth like a comb, which, so soon as the bolt begins to move, engage with a projection on the back plate, so that no change can be made in the arrangement of the slides after the bolt has been partially moved.

The ward-bits of keys adapted for tumbler locks are formed by a series of reciprocating cutters, the width of each cutter corresponding to the thickness of the tumblers; the cutters are made capable of adjustment relatively, for the purpose of producing and shaping the ward-bits of different keys to the special form required.

[Printed, 1*s*. 4*d*. Drawings.]

1858.

A.D. 1858, January 20.—N° 94.

NIXON, Christopher Nugent.—This invention has for its object the application of the moving principle of the screw to various purposes, such as to the steering apparatus for ships, capstans, windlasses, lifting, pressing, and amongst other things, to shooting the bolts of locks. The principle is applied by means of worms and worm wheels or drums, variously arranged according to the object and use.

In applying the invention to locks, "two or more bolts may be shot by studs fixed to the screw framework or to the spindle of the drum or wheel, which shall act upon the bolts in the course of revolution, thus shooting them; unshooting them in the same manner as the action is reversed. A screw key may be used, the same being so constructed that as it works in the manner of a worm upwards and downwards, the centre wheel turns the pinions of the screws, causing the same to revolve. This key might, if thought advisable, be made of a different size and inclination of thread for every lock, thus rendering it a very difficult, if not an impossible matter to pick the lock. Any other suitable key might, however, be substituted, and employed for turning the machinery."

[Printed, 10*d*. Drawing.]

A.D. 1858, January 21.—N° 110.

WILSON, Peter, NORTHALL, Samuel, and JAMES, Thomas.—This invention relating to locks and latches, consists :—

1st. In the use of a friction roller on the end of a latch bolt, or on a latch and lock bolt, so that any door to which it is applied may be opened in either direction.

2nd. Making the follower of a latch V-shaped, so that when turned by the knob, either the one or the other inclining side may act against one of two stumps fixed on the bolt, which may also be locked by a key, the stumps being sufficiently apart to pass the follower in its ordinary position.

3rd. The use of a secondary bolt in the construction of a detector lock, which bolt when a false key is introduced and made to withdraw the principal bolt, is shot out thereby so as to prevent the opening of a door; the true key being capable of withdrawing the secondary bolt, and restoring the proper position of the mechanism.

4th. Making lock or latch spindles triangular in transverse section, and fitting a spring on one of the flat sides for the purpose of securing the knob.

[Printed, 10*d*. Drawings.]

A.D. 1858, February 8.—N° 229.

TRIPE, Julius Decimus.—(*Partly a communication.*)—This is an invention of apparatus and modifications thereof adapted for securing window sashes when closed, or when partly open for ventilation.

In some cases a detent or lever is constructed and so fixed in a position on one sash as to be capable of impinging on a rack or stop fastened on the other, either falling by its own gravity or is forced into position by a spring or otherwise. The detent may in other cases be fixed to the sash and the rack to any fixed part of the frame, or vice versa, and when sashes are opened for ventilation, the detent and rack will until moved out of contact, prevent them from being either any further opened or closed.

Describes a modification which differs from the first in the mode of locking, which is effected by a spring lever locking into a V notch.

Several other modifications are shown and described.

[Printed, 8*d*. Drawing.]

A.D. 1858, February 23.—N° 355.

WHITE, George Frederick.—This invention has for its object "improvements in door and other locks."

"Each lock is constructed with two bolts, which are capable " of being connected or geared together in such manner that " when one is pressed back or unlocked, the other is pressed out " from the lock. Ordinarily only one bolt is used, and so long " as such is the case the lock acts as an ordinary lock with one " bolt, but when it is desired to prevent the lock from being " opened by a correct key or a pick lock introduced through the " keyhole from the exterior, then the two bolts are connected " or geared together, so that any action to unlock or move back

" one bolt will have the reverse effect on the second bolt, and " cause it to be moved out of the lock as the ordinary bolt is " moved into the lock, and the lock can only be unlocked by " separating the two bolts."

"Locks thus constructed with two bolts may be arranged with " wards or tumblers and other parts, to increase the security " thereof in like manner to other locks where only one bolt is " used to each lock."

Two modifications of these locks are described, the second having an extra tumbler which turns on a fixed centre and carries a stump that enters a true notch amongst a series of false notches (cut in the end of the bolt) when the bolt is shot back; this tumbler being first brought into coincidence with another tumbler by the key, the lock containing also a set of tumblers of the ordinary kind.

When not required to act, the action of the secondary bolt may be suspended.

[Printed, 10*d*. Drawing.]

A.D. 1858, March 4.—N° 428. (* *).

HIPKINS, George Frederick.—(*Provisional protection only.*) —"Improvements in constructing and attaching knobs and spin- " dles, and in connecting knobs to doors, drawers, and other " articles." The first part is accomplished by forming the spindle with a screw at each end and with a square part at or near the middle, and by screwing one end into the knob and sliding upon the projecting part a nut or washer, which so engages in the knob as to render it incapable of turning, " and thereby prevents " the spindle from unscrewing from the knob when the knob is " turned." To effect the second part the spindle may be screwed into the door or drawer, or a flanged collar " may be inserted from " inside into a hole formed in the door, &c.," and the spindle may be passed through and screwed into the collar. If the knob is of metal, " the spindle may be cast in or otherwise attached to the " knob and made to engage with the flanged collar by screwing." If the spindle is to be adjustable, " so as to accommodate its " length to the thickness of the door or other article," it is made square, and a screw thread is cut on its angles; it " is made to " enter the knob to a greater or less extent by sliding or screwing " therein. The sliding may be effected by a screw collar attached " to the neck of the knob by burnishing." When the spindle is made to screw directly into the neck, the knob "is fixed by a "collar sliding on the square spindle; this collar has projections "which engage in recesses in the neck."

[Printed, 4d. No Drawings.]

A.D. 1858, March 31.—N° 682.

DUCE, MARTHA widow and executrix of Joseph Warner Duce.—This invention, relating to locks and latches, and to attaching knobs to spindles, consists as regards locks;—

1st. "In giving to one or more of the levers of a lock a compound action, the said lever or levers having the ordinary "motion upon a centre, and in addition thereto a motion whereby "the plane in which the lever is situated is changed. By this "method of construction great additional security is acquired, "as the bolt can only be moved by the key lifting the several "levers to their proper heights respectively, and also raising the "lever or levers which require to be raised from the plane in "which they are situated. The key is made of a suitable form "to effect that motion of the lever by which its plane is changed."

2nd. In the use on an independent center, of a supplementary tumbler, in which a second stump on the bolt works.

Latches.—1st. "The follower is made to act upon a lever "jointed at one end to the lock case, the free end of the said "lever acting upon the free end of a balance latch motion, or "second lever, jointed at or about its middle to the lock case. "The other end of the last-mentioned lever is connected with "the latch bolt."

2nd. "Making a tongue or projection on the upper or lower "side of such latch bolts as have double bevilled ends, for the "purpose of allowing them to open in either direction;" without this "double bevilled latches are liable to disengagement from "the staple by pressure upon the door, and without the turning "of the latch knob."

The mode described of attaching knobs to square spindles, consists in forming a longitudinal groove in one of the sides, tapering from the middle of the spindle to the end; the screw which passes transversely through the neck of the knob has a conical point which, being screwed tight into the groove, holds the knob in its place, as the screw point will not slide towards the narrow end of the groove.

Both knobs may be fixed in the same manner.

[Printed, 6d. Drawing.]

A.D. 1858, April 13.—N° 797.

SCHÄFER, Philipp, and SCHÄFER, Frederick.—This invention relates to fastenings for travelling bags and similar articles, which fastenings instead of being fixed to and catching in the center, as was the case heretofore, are fixed on the outer frame towards each end. They each consist of a spring catch to be acted upon by a spring bolt, or for locking by a key, double hinged tongues being attached in the same position to the inner frame to engage therewith when the bag is closed. By this means the gaping at the sides is prevented, and a central lock may be fitted to the frame if thought desirable.

[Printed, 6*d*. Drawing.]

A.D. 1858, May 17.—N° 1100. (* *)

HILER, Selah.—(*Provisional protection only.*)—The title of this invention is " An improved method of coating or amalgamating " iron with silver, copper, brass, or other metals, or alloys of " metals."

The inventor states:—" The nature of my said invention con- " sists in forming a surface of brass or other ornamental metal " on iron or steel as follows:"—

" I take a suitable sheet, bar, or block of wrought iron (or " steel), and clean the surface thereof on one or more sides and " heat the same, and while heated cast on to said surface or " surfaces the brass or other metal, and the union may be " accelerated by the use of borax or other flux, or the coating " metal may be united to the iron while the latter is in a state of " fusion, and the brass or other metal is to bear the desired pro- " portionate thickness to that of the iron.

" The iron and brass, or other plating metals may then be " rolled down to the desired shape or thickness, or cut out, or " made up into any articles for which said plated or coated iron " may be adapted, such as buttons, stair rods, tubing, bells, " hinges, bolts, and other articles."

[Printed, 4*d*. No Drawings.]

A.D. 1858, May 24.—N° 1160.

HAMILTON, George, and NASH, William Henry.—(*Provisional protection only.*)—This invention relates to the construction of locks, and to adapting keys thereto.

In these locks are employed "two or more discs which turn "around the drill pin, and a portion of the circumference of "each of the discs projects beyond the frame or case of the lock, "and serves as a bolt. A portion of the circumference of each "of the discs is cut away, so that the discs may all be turned "round into such a position that no portion of them projects "beyond the frame, and when they are in such a position the "lock would be unlocked. The discs are placed at a distance "apart from each other, so that the portion of each of the discs "which projects beyond the frame when the lock is locked may "fit into slots cut in the striking plate or piece into which a bolt "is ordinarily shot. A portion of each of the discs is cut away "around the hole in its center, and projections on a key enter "the spaces so formed, which projections act on the discs and "move them round into such a position that no portion of their "circumference projects beyond the frame when the key is "turned into a certain position."

The keys are tubular, and are either fitted with ward-bits similar to the keys of tumbler locks, or the wards may be fixed in different positions around the tubular part of the key.

Describes the modified arrangements for locks into which a projection on a link plate enters and is retained; locks into which a hasp or shackle enters; and desk and other locks where a spring catch or bolt is employed. In either of these locks the discs may be brought separately into position for unlocking by the key, which is to be fitted with a sliding ward piece.

Other modifications for locks with sliding bolts are described.

[Printed, *4d.* No Drawings.]

A.D. 1858, June 11.—N° 1332.

HART, George William.—This invention, relating to the construction of locks, consists in making the bolt with two slots through it, and to carry a fixed stump. There is one set of tumblers to be acted on by the key, and another, a "detached "tumbler, is acted on by a cam put in motion by the key, or by "the key itself; the bolt has at its upper edge a projection, the "back edge of which is inclined, corresponding with an incline "on the front edge of a projection on the upper edge of the "tumbler, which is actuated by the cam; the tumbler which is "worked by the cam has also a slot through it, in which the

" stump on the bolt moves as the bolt is slid back, and such slot " at its lowest part is longer than at its upper part. The back " part of the tumbler which is worked by the cam has a shoulder " or projection at its upper edge, which rests against a fixed stop " or projection on the case of the lock in such manner that " should it be attempted to push back the bolt, it would by its " upper projection come against the projection at the fore end " of the detached tumbler, and be resisted by it, and that by a " fixed stump on the case. The tumblers, which are actuated " by the key, move on an axis at their back ends, and the fore " end of each of such tumblers is formed into a toothed sector, " which takes into a pinion on the axis of a disc, having formed " on its circumference a number of false notches, and one or " more true notches or holes. The false notches are less deep " than the true notch or notches, and the tumbler which is " worked by the cam has a tooth, which, when the discs are " turned correctly into position by the corresponding tumblers " moved by the key, the tooth will fall into the true notches of all " the tumblers. The discs have fixed guards around them, " except opposite the place where the true notch is to be brought " when the proper key is used."

In some cases locks are made with a series of rotating tumblers or discs, respectively furnished on the periphery with a number of false notches, and one or more notches which are true.

[Printed, 10*d*. Drawing.]

A.D. 1858, June 15.—N° 1350.

PITT, BENJAMIN. — This invention, relating to knobs and handles adapted to the spindles of door locks and latches, is supplementary to prior Letters Patent granted to this inventor, and bearing date May 14, 1844, No. 10,182. Instead of fitting the ornamental rose plates and knobs in the manner described in the specification of the said former invention, the under rose plate is now made to consist " of two parts, that is to say, of a " metallic plate, which is screwed on to the face of the door, " and made with a neck or collar formed with an external worm, " the other portion of such under rose being a collar, which is " fixed in the internal aperture of the outer or ornamental rose, " and furnished in the interior thereof with a worm, correspond- " ing with that on the neck or collar of the before-mentioned " plate, the knob or handle being jointed thereto by means of a

“ nut, so as to allow the knob to revolve without affecting the
“ upper or ornamental rose. The metallic plate having been
“ screwed to the door, the knob or handle with the outer or
“ ornamental rose is attached thereto by means of the wormed
“ collar fixed to the latter, and forming part of what I call the
“ under rose, the same being worked over the wormed neck or
“ collar attached to the said plate. The upper or ornamental
“ rose may be further secured by means of a small pin or screw
“ passed through the same, so as to prevent the possibility of its
“ being shifted from its position by the movement of the knob or
“ handle after having been screwed up. . . . . In some instances
“ it may be desirable to attach the under rose to the lock itself,
“ instead of to the door.”

Describes a method of fixing the under rose plates constructed according to the said prior invention.

[Printed, 8*d*. Drawing.]

A.D. 1858, June 29.—N° 1465.

HARCOURT, Joseph. — (*Provisional protection only.*)—This invention of an “adjustable spindle for locks and latches,”
“ consists in forming the spindle with a deep lengthway groove
“ on one of its sides, in which a small piece of metal slides,
“ which piece of metal is flat on the top, but made to taper
“ from the ends on the under side to an angle, so that looking
“ at it sideways it assumes the form somewhat of a double
“ wedge, that as the handle is put on the spindle, and the
“ double wedge so placed that the screw hole of the knob shall
“ be over the inner end of the double wedge when it is in a
“ position to be secured simply by turning in the small screw in
“ the neck of the knob in the ordinary way, when it will depress
“ the inner end of the double wedge and elevate the outer one,
“ or the part that is within the knob, so as to make it impossible
“ for it to be pulled off; thus the meeting of the two inclines
“ (forming the wedges) forms the fulcrum on which it acts.”

The form of the sliding piece and parts, or the groove on the spindle, may be modified.

[Printed, 4*d*. No Drawings.]

A.D. 1858, June 30.—N° 1470.

WHEATCROFT, William Smith, and SMITH, James Newton.—(*Provisional protection only.*)—This is an invention relating to the construction of locks and fastenings, made partially or entirely self-acting, and applicable to safes, office, and other doors requiring to be opened only at stated times. To this end is fixed in the interior of the safe or receptacle, and connected to the inside of the door, an apparatus which is kept in motion when wound up by an elastic spring after the manner of clockwork, the moving or operating parts to be so placed in communication with the bolt of the lock, or with simple catch bolts or other fastenings, as to prevent the opening or withdrawing of them until the stated time has expired, at which moment the apparatus will cease to impede the action.

Such an apparatus may be employed to close a keyhole until the time appointed for inserting the key to open the lock again arrives.

[Printed, 4*d*. No Drawings.]

A.D. 1858, July 6.—N° 1513.

DAVIES, JOHN TAYLOR.—(*Provisional protection only.*)—This invention relates to the construction of that class of combination locks which have no keyhole, and to the peculiar make of the part which acts as the key, and which will operate upon the corresponding parts of the lock, without reference to any index, signs, or figures. The lock contains a ring cam and sliding carriage, and two sets of sliding tumblers which are operated by a ward piece on a shaft turned by a loose cross pin or handle, which performs the operation of locking and unlocking, and requires turning successively in different ways in order to pass through a series of irregular notches in a series of key rings, fixed in a cylindrical case, which projects from the front of the lock and is closed by a cap, centrally through which the key shaft passes. When the loose handle or cross pin is withdrawn from the shaft, the key can be adjusted without reference to index or figures, and as the combination rests with the key and not with the tumblers, the lock can only be unlocked by the same combination which locked it.

[Printed, 1*s*. Drawings.]

A.D. 1858, September 1.—N° 1989.

NEWTON, WILLIAM EDWARD.—(*A communication.*)—This invention relates to the construction of that class of permutation locks for doors, safes, and similar purposes, as have no keyhole, that part which acts as the key always remaining in the lock, the object of the invention being:—

1st. To prevent the possibility of feeling the tumblers, for the purpose of discovering the combination by which the bolt of the lock is shot.

2nd. To avoid the use of a keyhole, so that explosive substances may not be introduced.

3rd. Arranging the parts so that force cannot be applied to force back the bolt.

4th. "To have the parts so arranged that the instrument by " which the position of the tumblers is usually determined cannot " be brought to act on more than one at a time, so that the proper instrument for operating the bolt cannot act upon it until " the proper distribution or arrangement of the tumblers shall " have been effected."

The lock contains a series of cogged discs or rotating tumblers, each having a radial slot, and severally requiring to be brought into coincidence before the bolt which carries a piece to enter the collective range of slots, can be shot. The tumblers are actuated by a corresponding series of cog wheels, which turn freely a regulated distance on a fixed arbor projecting from the lock plate, and these wheels are actuated by a toothed wheel on the key shaft, which wheel is caused by the action of the latter, both to rotate and move in the direction of its axis, so as to come out and into gear, there being also in combination, a cylinder on the key shaft and a segment for locking the series of wheels in the position given them by the wheel on the key shaft, and there is also a permutation register for the key.

[Printed, 1*s*. Drawings.]

A.D. 1858, October 5.—N° 2212.

HAMILTON, George, and NASH, William Henry.—This invention relates to the construction of locks, which contain two or more discs free to rotate within the lock case round a common center. A part of the periphery of each of the discs projects beyond the case of the lock so as to enter the striking plate and act collectively the part of a bolt. A segmental portion of each disc is removed, and when required to unfasten the lock, it is effected by bringing all these cut away parts into coincidence, the key having projections to enter spaces or apertures formed near the center of each disc, is capable of rotating and adjusting them.

In those locks which receive a hasp or shackle, the discs do not project from the lock case, but are formed of different diameters with projecting pieces, and the hasp or shackle is shaped to correspond.

For desk or other locks having spring catches or bolts, the pushing back of the catch or bolt is prevented by turning the periphery of the discs against the bolt end; and the bolt is free when the cut away portions of all the discs, which vary in size, are brought into coincidence directly opposite the end of the bolt, which is shaped in steps to correspond with discs of different diameters.

[Printed, 1*s*. Drawings.]

A.D. 1858, October 11.—N° 2263.

PLATT, Joseph.—(*Provisional protection only.*)—This invention relating to the construction of locks comprises :—

A lock having its key furnished with a double set of ward-bits or "throwers," which correspond with stationary wards in the lock and act on levers and tumblers; the key has also a cross slit up the barrel, which slit engages with a cross piece fitted and turning in the keyhole. This lock is made so that the key turns only in one direction, and when withdrawn it leaves the bolt shot.

A lock furnished with a key having two sets of ward-bits or "throwers," which act in succession on the same tumblers and respectively contribute towards the action of the bolt, the lock acting by means of tumblers and bars. Several bolts uniting at a common point are so introduced that all act simultaneously.

A less expensive lock is also described as having two sets of tumblers so mounted on the bolt as to be capable of operating by a double bitted key. In all the locks the tumblers are returned to their normal position by springs.

[Printed, 4*d*. No Drawings.]

A.D. 1858, November 9.—N° 2506.

HENRY, Michael.—(*A communication from Mr. Rebour.*)—(*Provisional protection only.*)—The object of this invention, relating to the manufacture of locks, is to so construct them as greatly to reduce their size, by causing the key to act on an intermediate piece moving in a curved recess formed in a plate which carries the bolt, the ward-bits of the key turning the parts instead of raising them. The details of these locks are to be cut, stamped, or punched out of metal in the cold state.

According to one arrangement of lock "the bolt may be in a " piece with a sliding plate, having a space or recess cut away " from its area, in which travels a suitably shaped piece or appli- " ance which holds a spring (connected to the spindle pin or " gudgeon), and on which the key bit or ward acts, causing it to " turn in the space, and bear against the plate and thereby draw " it back, and with it the bolt, and so open the lock or fastening " if not otherwise prevented; but notches may be formed at the " top or edge of the plate, and a pin or stop piece provided and " caused to take into one of these, and thereby stop the plate's " backward motion, and prevent the lock being opened even with " the proper key or knob until the stop piece be removed from " such notch and allowed to drop into another, when bolt carrier " and bolt may easily be withdrawn, but prevented from being " double locked."

[Printed, 8*d*. Drawings.]

A.D. 1858, November 11.—N° 2533.

NEWTON, ALFRED VINCENT.—(*A communication*).—This invention relates to the locking or fastening of the doors of bank safes, closets, and apartments on the inside automatically, by means when applied to safes, of latching bars operated by clockwork, and when adapted to the doors of apartments of hotels and places there is an auxiliary bell pulling wire combined with the ordinary bell-pull of the room.

The locking or fastening apparatus is fixed inside the door, and consists of a cruciform bar on an eccentric axis, which bar is intended to act as a bolt; when liberated by a detent latching lever, it will by its own gravity unlock the door.

"To latch the bar, a handle is secured to the axis (outside of " the door), and on being turned while shutting the door, it " depresses the ends of the cross bar, till they lock into recesses " formed in the side walls of the safe and brackets on the inside " of the door, where they are firmly held until liberated by a " *clock movement* releasing the long arm of a pendulous latch

" which is suspended on a pin within the safe, and holds the " bars in their recesses."

" In the face of the dial plate of the clock movement is a pin, " which coming in contact with the end of the long arm of the " latch lever will lift it so as to allow the cross bars to drop back " from their recesses, and leave the door of the safe free to " open."

" For locking the doors of apartments in hotels, a series of " bell cranks are arranged in any suitable way in the rooms and " halls of the building, so as to allow the occupant to transmit " signals through the bell-pulling wires to a bell or annunciator " arranged in the office of the building.

[Printed, 10*d.* Drawing.]

A.D. 1858, November 20.—N° 2642.

PERCIVALL, Lovibond, and HOUGHTON, John.—(*Provisional protection only.*)—This invention relates to attaching knobs of glass or porcelain to lock and latch spindles, and to doors, drawers, &c.

The hole made in the knob to receive the spindle is of any form but circular, and that portion of the spindle end which enters the knob is shaped to correspond; a screw is passed through the center of the knob longitudinally, and takes into a threaded hole formed in the end of the spindle, and by this means when the screw is tightened up, the knob may be adjusted and fixed.

Knobs not requiring to have rotary motion are affixed to doors and drawers by means of a headed screw pin, which passes through the knob and screws into a threaded hole made in a piece let into a door from the inside; the screw pin towards its threaded end is made square to fit a hole in the knob plate or washer, which is then pinned to the door, in order to prevent the pin unscrewing, or the loosening of the knob.

[Printed, 4*d.* No Drawings.]

A.D. 1858, November 20.—N° 2643.

YOUNG, John.—This invention relates, first, to the application of locking mechanism to window and such-like fastenings, which cannot be opened without the use of a key.

This locking apparatus "may consist of a series of tumblers, " with which a bolt constituting part of the fastening engages, " which said bolt like the bolt of a lock cannot be withdrawn " until by the action of a key the tumblers are severally raised " to a proper height; or the fastening and locking may be effected " by means of the rotation of an axis turned by the key. An " incline or cam on the said axis engages with the arm of the " fastening fixed on one of the sashes, the said cam and the " mechanism connected therewith being situated on the other " sash. On the rotation of the axis the arm engages with the " cam, thereby fastening the sashes, the said sashes at the same " time being pulled closely together. The locking and unlocking " of this fastening is effected by a motion of the axis in the direction of its length. An arm on the said axis prevents the " rotation of the said axis, until by pushing against the key the " axis is so far moved that the said arm is brought opposite to a " slot, into which it can enter and permit the turning of the " axis. When the cam has been so turned as to effect the fastening of the sashes, the arm upon the axis is not engaged in the " said slot, and a spring gives motion to the axis in the direction " of its length. In order to unfasten this fastening, the axis " must be first pressed either by a detached key or a fixed knob, " and then a rotatory motion given to it, when the sashes will " be disconnected from one another."

This invention consists, secondly, in the construction of chain with alternate cast and stamped links to be used for suspending window sashes.

[Printed, 10*d*. Drawing.]

A.D. 1858, December 1.—N° 2746.

BALES, George William.—This is an invention of apparatus for "retaining doors, sashes, or frames, when shut and closed."

" For these purposes a plate is fixed to the edge of a door, sash, " or frame, or to the post or frame against or in which the same is " shut or closed. Through this plate a hole is formed to admit of " a portion of a sphere protruding through. The sphere or such " like bolt is contained within a tube or chamber at the back of " the plate, which chamber is closed at its end, and between the " *end of the* chamber and the back of the sphere a spring is " *applied, which* constantly presses the sphere outwards. On

" the door, sash, or frame, or on the post or frame against which
" the same closes, is another plate having a hole to receive the
" protruding part of the sphere. By this arrangement the sphere
" has not only the capability of rotating, but also of receding, by
" which the door, sash, or other frame may be opened and closed
" simply by pressure, and without otherwise acting on the sphere,
" which acts as the bolt or retaining instrument. Provision may
" be made for fastening the sphere or bolt when shut, and thus
" prevent it acting till unfastened."

[Printed, 6*d.* Drawing.]

A.D. 1858, December 6.—N° 2795.

FLETCHER, Frederick William.—This is an invention of apparatus adapted for the more easily forcing the sliding bolts used for door and other fastenings in lieu of the ordinary knobs and handles, and to other purposes. It consists in mounting a thin circular metal plate or disc eccentrically upon a steel or metal stud fixed slightly projecting from the face of the bolt plate, directly beneath the bolt, a certain portion of which corresponding in length with the diameter of the disc, is removed to admit the disc, which lies flat between the bolt and the bolt plate, and is furnished with a knob or handle attached to its periphery. When the disc is turned upon its eccentric axis its true center describes a curve along the bolt plate a distance in length corresponding to the proper action of the bolt, along which, as the disc is confined by the recess in the bolt, the latter is constrained to move.

[Printed, 6*d.* Drawing.]

1859.

A.D. 1859, January 5.—N° 37.

CLARK, Frederick.—This invention, relating to the attachment of knobs and handles to lock and other spindles, consists of having the spindle square in "transverse section, and with a
" screw'd thread cut at its angles. . . . . One end of this
" spindle should *pass* through a metal bush having a square

" opening to correspond with the section of said spindle, and
" also through a cylindrical spiral spring, which may be at first
" expanded; the said spindle being retained in its position inside
" the said bush and spring by a washer rivetted on end of spindle
" or by any other suitable contrivance, the said bush only being
" fixed in a hollow chamber inside the knob or handle to which
" this invention is applied."

On the other end of the spindle, which is also screw-threaded, " is placed a sliding collar, circular at the part nearest the centre " spindle, and square at its opposite end, which square end is " intended to correspond with and enter into a bush. . . . . . " This collar has a transverse circular flange to facilitate its " being moved on [the spindle as required for fastening to or " detaching from doors; on the same end of spindle, and at its " extremity, is a metal bush having a square aperture to receive " corresponding part of collar at one end and a circular orifice " with screwed thread therein to correspond with screwed thread " on spindle at the other end, this bush may be fastened in the " usual manner to the knob or handle."

[Printed, 6*d*. Drawing.]

A.D. 1859, January 12.—N° 99.

PHILLIPS, Samuel—(*Provisional protection only.*)—This invention, adapted as a fastening for securing windows, shutters, doors, and for similar purposes, consists, according to one arrangement, " of a spring cotter pin made of a length of metal doubled back " to form a spring, each end of the metal thus doubled being " furnished with half a knob or thumb piece, so that when the " spring is compressed the end intended for the hand to act " upon has the appearance of being terminated with an ornamental " knob or thumb piece."

The action of this fastening when applied to the securing of two window sashes is described as follows:—" The front sash " has a metal eyelet plate sunk into the rail, this eyelet having " a flange or flanges at the back of the plate, which flanges are " for the purpose of catching in a notch upon the cotter pin; " and thus preventing the pin from falling altogether out of " the front sash when the back sash has been released. The " back sash has another eyelet plate sunk in its meeting rail " *exactly opposite* that in the front sash rail; but the second

"eyelet plate is provided at the back with a short tube, the end
" of which is received by the notch upon the cotter pin at the
" time when the knob or thumb-piece being released the two
" parts of the cotter pin spring apart a short distance, and thus
" bind the two sashes together. To release them it is only
" requisite to press the two parts of the cotter pin together and
" partially draw it out, when the back sash will be free. This
" spring cotter may, if preferred, be made in two parts secured
" together at or near the point, and kept in action by a spring
" placed between them, instead of being made in one, and for
" some purposes the two parts of the cotter may be crossed like
" a pair of curling irons, and thus form an efficient bolt for doors
" or for any other similar employment."

[Printed, 4*d.* No Drawings.]

A.D. 1859, January 17.—N° 142.

BROOKS, EDWARD.—This invention relates to the construction of locks, which are made with a circular curtain plate having two keyholes, and free to rotate on a center pin, so as to come in front of the keyhole. The bolt shoots twice in one turn of the key, tumblers being employed which control the action of the bolt in the usual manner. Two sets of tumblers may be used, or one set with double action, to effect which the key is turned half a revolution for the first action, and whilst performing the remainder of its circuit to impart the second movement to the bolt, it acts upon an auxiliar slide piece connected thereto by a lever. In its locked or unlocked state a separate passage for the key to be passed through the curtain plate is open, but during the operation of locking or unlocking these keyholes are closed, there being an annular groove round the barrel of the key above the ward-bit to receive the edges of a narrow concentric opening made in the curtain plate for uniting the two keyholes the plate moving on its centre during the operation of locking or unlocking.

[Printed, 8*d.* Drawings.]

A.D. 1859, February 10.—N° 374.

YOUNG, JOHN.—This invention relates to the manufacture of knobs and rose plates adapted for attachment to doors, and to spindles of locks and latches. The neck of the knob is made hollow and is prolonged beyond the flange or shoulder, in order that it may project through the rose and enter a tube or socket attached thereto. This tube is divided longitudinally, one half being removable to admit the introduction of the prolongation of the knob which receives the end of the lock spindle, and at its extreme end has a collar or flange, whereby it is held to the rose plate, to the back of which the loose half of the tube is secured in its place by a screw; the flange extends beyond the tube and abuts against its end, and the rose plate is fixed to the door in the usual way.

Several other modifications and contrivances for attaching knobs to spindles are also described and illustrated.

[Printed, 8*d*. Drawing.]

A.D. 1859, February 21.—N° 478. (* *)

SCHLOSS, JOSEPH.—(*A communication from Vve. Henry Schloss and Frére.*)—"An improvement in locks or clasps for porte-" monnaies, pocket-books, bags, and other like purposes." This invention is an improvement upon one for which letters Patent were granted to Joseph Schloss, dated 18th January, 1856, No. 136. In a lock case is mounted a lever free to oscillate about its fulcrum, and having at its upper end a hook, and at its lower end a knob or thumb-piece which is "outside of and below " the case." A spring inside the case presses the lever into a position to secure the other part of the fastening, which is a hasp with a hole in it. The hasp is passed through an opening in the case and is pressed slightly; the pressure causes the spring to yield, and allows the hook to enter the hole in the hasp. The lever may be placed so that its knob protrudes from one side of the case.

Modification:—The locking part is composed of two plates (the lower one being perforated for the reception of the hasp, the upper one having a leather flap rivetted to it) and two small helical springs attached to the plates in such manner as to keep the upper plate "above the hole." To close the fastening place the hasp in the hole, and press it slightly; the pressure pushes back the upper plate, "and allows it to enter the hole " formed in the hasp." To open it pull the flap down; this compresses the springs and frees the upper plate from the hasp.

Sometimes both fastenings are combined "in one frame," the *former to fasten* an outside pocket, the latter to secure an inside one. "By these means the fastening is made double-acting;" viz., "by pushing the lever from left to right" the outer pocket "is opened," and pulling the lever down opens the inner.

[Printed, 6*d*. Drawing.]

A.D. 1859, March 2.—N° 547.

CURRIE, Peter.—This invention has for its object the making and attaching knobs to spindles that they may abut against the follow level with the side plates of locks and latches, instead of against rose plates attached to the surface of the door, the neck portion of such knobs being made sufficiently long to pass through the wood of the door to reach the lock plate, the knob at one end of the spindle, which is screw-threaded, being screwed on, whilst the knob at the other end of the spindle is held by the reaction of a helical spring, disposed in the chamber of the knob on the spindle end, which is furnished with a cross pin, between which and the shoulder of the contracted hollow passage through the neck of the knob, the spring becomes compressed when the knob at the other end of the spindle is screwed up to its place, the necks of both knobs turning freely in, and unsupported by the woodwork of the door.

A modification is described and also a knob adapted for a catch or latch with one handle.

[Printed, 8*d*. Drawing.]

A.D. 1859, March 16.—N° 660.

ASH, Isaiah.—The object of this invention is to increase the security of locks and latches, and make them more difficult to pick, by the introduction of additional levers or lever guards.

To this end, one or more of these lever guards working on a fixed pin is or are disposed above the bolt. "One end of each "lever guard is formed with a notched or toothed piece or "segment, such pieces or segments being of different radii, and "each lever guard being of the thickness of two of the ordinary "levers or tumblers. The bolt is provided with a projection or "stop adapted to take into the notches or teeth of the lever "guards. . . . . . . Upon the key being applied to shoot "the bolt, the levers or tumblers are elevated thereby in the "usual manner, raising with them the said lever guards, which, "being clear of the bolt stop, allow the bolt to be shot. If, "however, an *attempt* be made to pick the lock by the ordinary

" method of raising the tumblers one by one with the pick and
" forcing the bolt back to meet the gatings, the object is defeated
" by the bolt stop taking into the notches or teeth of the lever
" guards which have not been raised, the same result taking
" place upon any one of the tumblers or levers being moved with
" the pick. In order to allow of the bolt stop being forced into
" the notched or toothed segments of the lever guards, the fore-
" most chamber of the levers or tumblers is enlarged to admit of
" the motion of the main bolt stump. In order that the bolt
" may be shot back, all the tumblers or levers must be lifted
" simultaneously, so that the bolt stump will pass through the
" several slots or gatings therein, the lever guards being at the
" same time lifted by the tumblers or levers, and allowing the
" bolt to return to its position within the lock."

[Printed, 8d. Drawing.]

A.D. 1859, March 16.—N° 669.

HAMILTON, George, and NASH, William Henry. — (*Provisional protection only.*)—This invention relates to the construction of tumbler or lever locks, and to the keys of such and other locks, the object as regards locks being to avoid the use of springs for disarranging the tumblers after the bolt is shot, and instead thereof, introduce a piece which has, trigonally disposed, three projecting arms, and is mounted partially to revolve on its axis, when one of its arms is struck by a plate attached to the bolt, which has the effect of deranging the tumblers by bringing another of its arms in contact therewith, the same result being effected when the bolt is withdrawn. These locks are otherwise so constructed that the key when introduced, passes through a slot in each of the tumblers, and by contact with the upper side of the slots, respectively arranges the tumblers, and deranges them by contact with the under side.

Keys for locks with drill or centre pins, are made tubular throughout the whole length of the stem for the purpose of removing dirt or flue from the inside.

[Printed, 4d. No Drawings.]

A.D. 1859, March 21.—N° 714.

BICKERTON, Joseph. — This invention for opening and closing windows with sliding sashes "consists in so fixing, "shooting or sliding bolts, that a connection is secured by such "bolts between the sliding edge or side of the sash and a fixed "part of the window frame. For this purpose a lock or other "suitable fastening is let in or morticed into the sliding edge of "the sash with the bolt towards the part of the window frame "passed over. The keyhole is made through to the side required, "and holes to receive the lock bolt are made at intervals in the "fixed framework of the window, and thus render the further "opening of the sash difficult without the key of the lock. Or "a rack and pinion arrangement may be used for the said "purpose of securing the sash opened to a certain point. In "either case the sash can be closed easily at will but not opened "beyond the point at which it has been fixed."

[Printed, 4*d*. No Drawings.]

A.D. 1859, April 21.—Nº 1004.

DAVIES, JOHN.—This invention relates first to apparatus to be attached to swing doors for the purpose of ringing a bell when the door is opened in one or the other direction, either by pushing or pulling, and secondly, to the construction of a bolt or fastening, which is described by the inventor as follows:—"Instead of "connecting the knob by which the bolt is moved by fixing it "rigidly to the bolt, I connect the bolt and knob by a spring "riveted near the acting end of the bolt, its loose end being "forked and engaging with the stem of the knob. When the "bolt is shot the spring forces the end of the stem into a hole in "the bolt case, and the bolt cannot be withdrawn until the knob "has been raised so as to withdraw the end of the stem from the "hole it had engaged in. Instead of a knob the stem may be "so formed that a key is required to enter the bolt case to "liberate the bolt. The bolt described may be used as a fastening "generally."

[Printed, 8*d*. Drawings.]

A.D. 1859, April 27.—Nº 1059.

HAMP, CHARLES.—(*Provisional protection only.*)—This invention relates to the construction of lever locks "with two distinct "and separate sets of levers, each operated upon by the 'bit' or "'bits' of the key; and this invention further consists in forming the *keys of lever locks* with two 'bits,' in some cases one

" shorter than the other, each of such said 'bits' being intended " to operate upon each of the aforesaid sets of levers for locking " and unlocking the same; it is also proposed, in some cases, to " employ a loose curtain attached to the case of the aforesaid " lock, with a keyhole formed therein corresponding with the " short and long 'bits' on the key, the use of the said curtain " being to enable the key to be removed from the lock when it is " locked."

[Printed, 4*d*. No Drawings.]

A.D. 1859, May 2.—Nº 1094.

FERGUSON, JAMES, and McGAVENY, JAMES.—(*Provisional protection only.*)—This is an invention of fasteners adapted to shop window and other shutters. "The ordinary fastening bolt " is modified, so as to become locked when pushed home into a " socket fitted on or into the window frame. This socket con- " tains a catch acted upon by a spring, and this catch is tem- " porarily forced aside by the fastening bolt, the point of the " bolt or of the catch being bevilled to obtain this movement. " On the fastening bolt being pushed quite home, the catch " springs back into a notch or hole in the fastening bolt, and " prevents its withdrawal. To remove the fastening bolt, the " catch must be drawn aside by a pin, or by a wire or cord " carried to any convenient situation. On the catch being drawn " aside, a second spring pushes the fastening bolt a slight dis- " tance outwards, and so prevents the catch from re-entering the " notch or hole, and at the same time facilitates the removal " of the bolt. The details of the contrivance are obviously " susceptible of various modifications."

[Printed, 4*d*. No Drawings.]

A.D. 1859, May 4.—Nº 1118.

ADOLPHUS, JOSEPH.—(*Provisional protection only.*) — The object of this invention, relating to locks and latches adapted for doors, gates, or shutters, is the additional security obtained by preventing the bolts of such locks being shot back, or latches raised until relieved by some person on the inside of the room or place.

It consists, as regards locks, in passing a pin or screw through the rigid or immovable part of the lock and case from the inner side of the door, gate, or shutter, such pin or screw to pass also through the bolt, and be withdrawn before unlocking.

In respect to latches, a similar pin or screw is employed, passing into, through, or above the latch and into the back plate or fixed part of the latch, which it is not then possible to raise from the outside until the pin or screw is withdrawn.

[Printed, 4*d*. No Drawings.]

A.D. 1859, May 7.—Nº 1149.

HENRY, MICHAEL—(*A communication from Joseph Napoleon Rebour.*)—The object of this invention is to improve the manufacture of locks and latches, which are constructed in such manner that the thickness of the article is reduced, and the mortise required to receive it not made so deep; to effect this result the key may be caused to act on an intermediate appliance working in a curved path formed in a plate or tail piece connected to the bolt. Various other arrangements and modifications are described.

The parts and details of locks are formed by cutting, punching, or stamping the metal in a cold state, so that such counter or duplicate parts may be variously combined to produce numerous modifications requiring separate keys. The bits of the key of such a lock may turn the chambers instead of raising them, the bolt carrier may be moved by either toothed racks, levers, or otherwise, and the bolt may be held by a stop piece or detent.

Describes another arrangement wherein "two handles are " mounted on a hollow spindle carrying levers, there being a " combination of levers or tumblers so arranged that on releas- " ing the key or handle, a spring in the bolt carrier pushes down " a slide which acts on a lever moving the bolt carrier, while a " slot in another lever is slipped over a stud on the bolt carrier " to prevent its moving until the key entering the spindle works " a stump, or a tumbler or lever on the spindle."

The other arrangements and modifications comprise:—A lock containing a two-armed appliance on which the key acts. An arrangement of a single-action lock, the key acting on one side, and a handle on the other. Two double-action locks, one with teeth and rack arrangements, and the other with levers and spring. An arrangement of a half-turn French bolt lock, to which a night bolt may be added. A combination in which, by turning a handle connected to a lever, the latter is made to move the bolt carrier and bolt; also a modification of this arrangement with the addition of a night bolt. Description of a hinged box lock, padlock, or fastening, constructed on the same principle. Other padlocks. Two simple modifications exemplifying the results of variously arranging the counterpart details.

[Printed, 2*s*. 2*d*. Drawings.]

A.D. 1859, May 17.—N° 1228.

LAW, CHARLES.—This invention relates to the construction of locks, wherein two or more stumps or studs are introduced, not in the usual way by rivetting them to the bolt, but by fixing them to a small plate or lever capable of turning on a stud fixed to the bolt. A spring is so placed under the plate that in the event of the latter being forced, it, when the force is removed, is brought back to its normal position. This force, excepting it be applied by the proper key, will so act upon the tumblers as to cause them to bind, and the stumps on the plate are thrown out of the only direction in which they can pass through the gatings of the tumblers and allow the bolt to be shot. The plate is relieved when the force is removed from the bolt, by the action of the spring, the stumps resuming their proper position.

Preference is given to such an arrangement of tumblers as is kept vertical by means of guides.

[Printed, 8*d*. Drawing.]

A.D. 1859, May 26.—N° 1302.

YOUNG, JOHN.—This invention relates to the construction of locks, to the manufacture of knobs for locks and latches, and to apparatus for preventing the admission of draughts and wet through doors and windows. It consists :—

1st. In so attaching a stump to the bolt of a lock, that it is capable of turning upon its center when disengaged from the tumblers after the bolt is shot, and will prevent the withdrawing of the bolt until restored to its proper position by the action of the key.

2nd. "Fixing a plate above the keyhole in the inside of the " lock, the edge of the said plate having a nearly semi-circular " figure, and one face of the said plate is formed into a series of " steps corresponding to the gating of the key. The said plate " forms an additional security, and enables me to dispense with " some of the tumblers ordinarily employed."

Knobs for locks and latches are made by casting the neck, shoulder, and flange to the body or spherical part, which is to be previously formed by the process of raising in dies or otherwise, the article to be afterwards finished in the usual manner.

Draughts and wet coming through crevices in the sides of doors and window sashes, are stopped by placing thin metal plates or strips in rebates formed in the edges of such doors or casements, the strips being capable of retiring or projecting, so that their edges are kept in contact with the surrounding frame.

[Printed, 1*s.* 2*d.* Drawings.]

A.D. 1859, June 23.—N° 1513.

PRINCE, Alexander.—(*Provisional protection only.*)—The object of this invention relating to alarum locks and latches, is to guard against attempts to open or shut the locks of safes, doors, and places, without audible notice being given. The manner in which this is to be effected is described as follows:—

"To locks and latches of the ordinary description I place a "saucer-shaped bell, or a plain metallic disc, either within the "lock or behind the end thereof in the mortice of doors or safes, "and immediately behind the bolt or spring catch I place a small "rod, which passes through the lock case, and communicates "with a spring lever or hammer, and which strikes the bell or "disc, thus giving notice when a door is opened, or on the "unlocking of a safe, cupboard, or the like. I prefer placing "the alarum within the lock case when there is sufficient room, "and when not, I detach it, so that the same may be applied to "locks of the ordinary construction, and at present in use."

[Printed, 4*d.* No Drawings.]

A.D. 1859, June 24.—N° 1517.

MILLS, James.—This invention relates to the manufacture of keys which, instead of being forged and hammered into shape in the usual way, are as described by the inventor, produced in the following manner:—

"I make use of pieces of iron or steel of about the breadth and "thickness of the body of the key or gib required; these pieces "after being heated at one end are laid in a groove in a steel or "other metal plate, in which they are securely held; a die or "stamper, acted upon by a cam or other suitable mechanism,

" is then brought against the heated end of the piece of iron or
" steel to compress it to the shape of the head required on the
" key or gib. In some cases I make several grooves for holding
" the pieces of iron or steel in a sliding block or in the circum-
" ference of a disk, which block or disc is moved after each head
" has been compressed, so as to bring each piece in succession in
" a line with the compressing instrument.

[Printed, 10*d*. Drawing.]

A.D. 1859, July 2.—Nº 1579.

MORVILLE, Robert Whiteside. — (*A communication from Porter A. Gladwin.*)—This invention relates :—

1st. To the substitution of spiral springs in lieu of the weights usually employed for balancing window sashes sliding vertically.

" Each spring is placed in a pulley carried by bearings in a box
" recessed into the window frame. The cords from each sash
" are secured to and wound round the pulleys of the springs, so
" that the tension put upon the springs sustains wholly or partly
" the weight of the sash frame. Springs are employed to give
" friction, to prevent the sashes from moving too easily, or to
" retain them in the positions in which they are left when opened
" which springs are secured to the sashes, and press and slide
" against the window frames. By these arrangements the cases
" or boxes usually provided for sash balance weights can be
" dispensed with."

2nd. An arrangement of apparatus whereby window sashes sliding vertically can be made self-securing, consists of; " A spring
" hook or latch, which is secured on the upper sash, and a catch
" plate which is secured on the lower sash, and arranged so that
" by the act of closing the window sashes the plate forces back
" the spring hook or latch till the hook part passes the catch
" plate when the reaction of the spring brings the hook into the
" first position, so that the sashes cannot be opened again till
" the hook is pressed back by the hand to release it from the
" catch plate."

[Printed, 6*d*. Drawing.]

A.D. 1859, July 4.—Nº 1591. (* *)

BROOMAN, Richard Archibald.—(*A communication from Job Johnson.*)—Powder or mixture for refining and steelifying iron. According to this invention, take quick or caustic lime, free from earthy or foreign substances, and add to it an equal quantity of bone dust or baked bones finely divided, and a like quantity of charcoal; mix these ingredients intimately, and expose them to the influence of the weather for one, two, or more days; then take any convenient form of cementing or converting furnace, and interstratify the articles of iron to be operated upon with the mixture till the furnace is charged; afterwards close and lute with fire clay, and apply heat externally. "By this means and "process I am enabled to give to iron entirely new properties and "qualities, as well as" to convert or partially convert it "into "steel at pleasure. Iron, subjected to this treatment, assumes "great rigidity and hardness without losing its property of "malleability and ductility." Amongst other articles "keys" "may be finished in iron, and then converted, or partially converted into steel, without impairing their forms or requiring "reconstruction."

[Printed, 4*d*. No Drawings.]

A.D. 1859, August 13.—N° 1869.

CLEGG, ROBERT DAWSON, and SAUNDERS, THOMAS.—(*Provisional protection only*.)—The object of this invention relating to the construction of locks, is to preclude the possibility of picking or unlocking such locks excepting by a key capable of adjusting itself to the peculiar mechanism; it is described as follows:—"The bolt which, as in the common lock, is to secure "the door, is made to move to and fro without the aid of any "spring, but merely by the aid of a simple leverage moved by a "common door or similar knob. The inside end or attachment "of this bolt adjusts itself to a lever, which lever holds the bolt "firm in its place, either locked or unlocked; underneath the "above lever is a number of levers or latches, these are moved "by means of springs forcing them into their proper position. "The construction of the key is peculiar, and has not, as is the "case with other locks, to be turned in order to lock or unlock, "but merely requires to be placed in the keyhole, and a slide on "the outside of the lock moves a lever in the inside, and allows "the various latches or levers to adjust themselves to the key "without at all turning the key, so that supposing it to be "locked, on putting the key in the hole and moving the slide

" on the outside, the bolt which secures the door will be imme-
" diately released or unlocked, and then again to lock it, turn
" the lever which moves the bolt and move the slide in the
" opposite direction to that of unlocking, and then withdraw the
" key and it will be securely locked, which it will be impossible
" to unlock without the proper key."

[Printed, 4*d.* No Drawings.]

A.D. 1859, August 17.—N° 1895.

BROOMAN, Richard Archibald.—(*A communication from Jules Emile Petit.*)—This invention relates to locks constructed with a double safety tumbler, comprising two tumblers or catches connected together by a shoulder hinge, The spindle for the key, which acts somewhat on the Bramah principle, may be either triangular, square, or of other suitable form; it has admission to the mechanism of the lock through a barrel, which projects from the front of the lock case. The bolt carries a toothed rack, which gears with teeth on the periphery of a disc plate; this plate gives motion to the bolt when the latter is disengaged from a projection on a forked piece, fitted to the body of the lock by a screw. A sector forms an essential part of the security element of the lock, as its position regulates the action of the safety tumbler, which would fall and detain the bolt in the event of any attempt being made to open the lock otherwise than with the proper key. No pick or instrument can be introduced into the interior of this lock by reason of the shape of the barrel.

[Printed, 10*d.* Drawings.]

A.D. 1859, August 26.—N° 1943.

FURRELL, James.—(*Provisional protection only.*)—The object of this invention consists in the application to the faces of locks of a shield or cover, so placed over the keyhole as to prevent access. This shield is to be of any suitable form and made of paper gummed or coated with an adhesive substance on one side and having an appropriate device or ornamentation, name or signature on the other. When applied the gummed side is first damped or wetted and then pressed against the lock plate so as to cover the keyhole, which is thus sealed up when the shield becomes dry, and access to the interior of the lock cannot be had without the removal, destruction or defacement of the shield.

[Printed, 4*d.* No Drawings.]

A.D. 1859, October 14.—N° 2343.

PRICE, George.—This invention relates to the construction of such locks, as comprise the case, bolt, levers and springs of an ordinary lever lock, and depend mainly for their security against picking upon the peculiar arrangement and position of the operating parts and details.

1st. The stump, the lever pin, and the guide stud of the bolt, are in relation to each other trigonally disposed, so that if any improper pressure be applied, a notch in the tail of the bolt is thrown upon the guide stud, and the triangular position is so altered by the lengthening of the distance between the main stump and the lever pin, that the faces of the gatings of the levers recede and are freed from pressure. When this mode of construction is adapted to chest or hanging locks, the ordinary "false plate" is used as an additional limb, and simply laid upon the tail of the bolt, to act instead thereof as the detainer or safety plate.

2nd. Forming a groove in the case of the lock for the bolt to work in, and be strengthened and supported thereby.

3rd. Fitting a nozzle of hardened steel to the keyhole of locks.

4th. A simple constructional arrangement of latch, which by either movement of the knob, is unlatched without the use of a follower crank.

[Printed, 8*d*. Drawing.]

A.D. 1859, October 26.—N° 2452.

CHRISTY, Richard, the younger.—(*Provisional protection only.*)—This is an invention of a portable fastening or apparatus adapted to the inside of doors of rooms, bed chambers, and places. It consists of two parts connected together by a sliding joint, one part sliding at right angles through the other part, which is furnished with teeth. When applied, the latter part is so placed against the door jamb, that the teeth are forced into it when the door is closed; the other part is then adjusted so that one end projects over the door and the other end over the jamb, forming a sort of bolt which it is stated will hold the door secure until it is removed. The apparatus when not in use may be carried in the pocket.

[Printed, 4*d*. No Drawings.]

A.D. 1859, November 7.—N° 2534.

GRAFTON, Henry.—(*Provisional protection only.*)—This invention relates to forming the surrounding parts of bell and signal apparatus, and the knobs and fastenings, of glass or other transparent or perforated substance adapted to admit light.

"Such matters may, if required, be combined with metal as a "means of fixture, and the glass or other matter thus employed "may have letters or other devices therein or thereon, such that "when parts arranged according to my improvements are applied "to a street doorway or other place, with light passing there "through, any number, name, or other information thereon may "be readily seen from the outside; and by the adaptation of "colors or other forms various ornamental effects may be ob- "tained, or the light passing through such apparatus may be "simply conducted on to other means which are thereby more "fully seen."

"In some cases the light may be allowed to pass through the "handle of the bell or other indicator, as the knocker of a door "and the like, or through or around knobs or handles, as well as "of the parts of locks."

[Printed, 4*d*. No Drawings.]

A.D. 1859, November 12.—N° 2570.

VICKERS, Archibald.—This is an invention of apparatus adapted for "opening and shutting two or four gates or doors "simultaneously, and for fastening the same when either open or "shut, consists in the employment of a crab turning two or four "upright shafts by means of wheels, worms, and pinions. The "shafting may be either vertical, oblique, or horizontal, and may "be made of wood, iron, or any other suitable material. The "upright shafts are the hinges or pivots upon which the gates or "doors are hung. These upright shafts are situated at four points "at equal distance from one another, and are in connexion with "two line shafts running parallel with each other, and connected "together by a cross shaft worked by a pair of mitre wheels at "each end of it. The crab works on the end of one of the line "shafts."

When open the gates cannot be shut without turning the crab, and they can only be opened by the same means.

[Printed, 10*d*. Drawing.]

A.D. 1859, November 14.—N° 2579. (* *)

GOLDBERG, Joseph, and GOLDBERG, Gustav.—(*Provisional protection only.*)—" Improvements in the construction of " purses or 'portemonnaies,' and in an improved lock or fastening " applicable to purses, bags, or other similar receptacles." The improvement in purses, or pocket books and purses combined, consists in constructing the sides with gussets so that more space may be afforded for the insertion of articles.

The improved fastening is composed of a " double headed " sliding bolt or stud " and " two plates of metal (one being " secured to each of the edges or parts to be secured together), " having a straight slot terminating in a circular orifice formed " therein, such orifice being at opposite ends in each plate." The plates are fastened by the bolt, which retains them together " so long as it remains in the straight slot," and they are disconnected by sliding the bolt " to the orifice at the end of the " slot," through which the bolt is then drawn.

[Printed, 4*d*. No Drawings.]

A.D. 1859, November 25.—N° 2672.

TILDESLEY, Matthew.—(*Partly a communication from John Bisset.*)—This invention relates to the construction of locks and latches.

Describes and exhibits designs of a padlock, having a catch bolt which is fastened simply by pressing the free end of the hinged loop into the case against the end of the bolt, so as to act as a wedge and press back the bolt, the end of which is shaped to a suitable angle; the bolt is returned by the reaction of a spring. The keyhole instead of being as usual in the front, is at the bottom of the case, and admits the key into a tube, which is free to move up and down within another tube fixed to the case. Inside the inner tube are placed helical springs, and outside are nibs or guards which project through a longitudinal slot in the outer tube, which slot has a number of lateral slotted branches. The key when inserted in the keyhole is first pressed upwards against the action of the springs so as to raise the nibs opposite the lateral slots, into which the nibs enter when the key is turned; the inner tube being turned also by a projection on the key, brings a piece on the top of the tube into contact with the heel of the bolt, and the latter is withdrawn against a back spring.

When the pressure on the key is removed by means of the springs, the parts assume their normal position.

Latches are also described, operating on the same principle with slight modifications.

[Printed, 1*s.* 2*d.* Drawings.]

A.D. 1859, December 8.—N° 2788.

RUMPFF, Augustus.—(*A communication from C. Weintraud, the younger.*)—(*Provisional protection only.*)—"An improved fastening "for porte-monaies, portfolios, bags, and other like articles." A bed plate is secured to the one side of the article and a hasp to the other, and from the plate "rises a metal staple which is folded "over and lies parallel" with it, a space being left between it and "the plate." "In the end of this staple is an aperture to receive "and allow of the passage through it of the hasp." Over the bed plate is fitted a sliding bolt having an aperture for the "reception of the hasp after passing through the staple;" the hasp is caught in the aperture in the bolt "and is retained in it "by means of an india-rubber or other suitable spring." To open the fastening the bolt is pushed aside.

[Printed, 4*d.* No Drawings.]

1860.

A.D. 1860, January 2.—N° 2.

LUIS, Jozé.—(*A communication from Lasserre and Sarthon.*)—This is an invention of a "safety lock," the details of which consist of a bolt having three grooves or notches, four springs, two knee-cranked detent bolts, a double-pronged lever catch moving on a pivot, and the pivot on which the key turns. The key has fixed, projecting from its stem relatively at an obtuse angle, two ward-bits, one of which acts on the catch piece of the double-pronged lever, and the other upon the bolt. According to the direction in which the key is turned one or other of the prongs of the lever catch is so brought into contact with the tail end of one of the *cranked detent* bolts as to cause its withdrawal from a notch in the main bolt, which is then free to move. Cut radiating from the keyhole centre, in the front plate of the lock case, are five slots and in a curtain plate fixed in front, is a central keyhole with two slots, corresponding to the form of the key, which when passed through the curtain plate, requires to be turned a portion of a revolution before it can pass through the case plate into the lock.

[Printed, 6*d*. Drawing.]

A.D. 1860, January 6.—N° 43.

FOWLER, John.—(*A communication from Warren Rowell*).—This invention relating to the construction of locks for doors and other purposes, has for its object increased security. To this end the opening for the key on one side of the lock is not opposite the opening for the key on the other, and when locked by the key on one side it cannot be unlocked from the other side, which then is not accessible.

"According to one arrangement the key acts upon the tumbler " or tumblers and bolt on the one side, (say, the outside) as in " ordinary locks, but when locked from the opposite side (say, " the inside), the key cannot be removed from the lock without " the bolt being withdrawn or unlocking. In order to do this " the tumbler or tumblers are formed each with a hooked piece " which takes on to the key to prevent its going fully round, " upon the bolt being thrown, and also to hold the key in position " to prevent the tumbler or tumblers being raised to admit of " the bolt going back by the introduction of a key or other " instrument on the opposite side."

"According to another arrangement the key may be withdrawn " from either side, though the bolt must be brought back, that " is to say, unlocked by the key being put in at the same side by " which locking was effected. In this case an extra internal " sliding piece or bolt (aided by a spring or springs) with or " without an extra tumbler or extra tumblers is employed for the " key to act upon on one side, such extra bolt acting as a stop to " prevent the key acting to unlock except when the key is inserted " for that purpose on the side by which locking was effected. " The internal bolt moves further than the external one by the " one motion of the key."

[Printed, 10*d*. Drawing.]

A.D. 1860, January 11.—N° 78.

NEWTON, ALFRED VINCENT.—(*A communication from John P. Lord and Richard N. Batchelder.*)—The object of this invention relating to the construction of locks, is the obtainment of increased security by the use of rotating wards, consisting of a series of concentric rings working in guides and fitted with adjustable studs. The outer ring imparting motion to the inner rings, is furnished with spur teeth to engage with a pinion turned by the key and actuating another pinion, a segmental portion of the periphery of which has spur teeth to engage with a rack on the bolt, whereby the latter is operated. The rotating ward rings " are slotted on one face to form a way for guard pins or studs, " which project from a slide attached to the bolt to pass the " wards when the bolt is desired to be thrown, A stud affixed " to the outer ring lifts as the ring is rotated a hammer carried " by a fixed spring, and allows it to fall on a bell set within the " box of the lock, for the purpose of indicating the position of " the outer ring and the number of rotations it has made when " setting the wards for unlocking. The key is also provided " with an adjustable collar, which has a scale of divisions to shew " the movements of the key, and it is by noting the movements " of these two instruments, which impart motion to the inner " rings, that the amount of motion requisite for adjusting the " wards for the locking or unlocking of the bolt is arrived at as " a preliminery to the use of the lock. In order to change the " permutation it is only necessary to take out and shift the outer " ring, or to re-adjust the studs or any portion of them which " communicate motion from one ring to the other."

[Printed, 8*d*. Drawing.]

A.D. 1860, February 22.—N° 473.

CRISPIN, WILLIAM HENRY.—(*Provisional protection only.*)—This invention relates to a door fastening, consisting of a simple latch bolt which, instead of being fitted in or upon the door, is arranged in a case that is fixed in a mortise made in the door frame, the striking plate with slot or socket to receive the bolt end, being fixed on the edge of the door.

" In order to prevent the bolt (when desired) from being " *actuated* by the knobs or handles in the usual way, a pin or

" stud operated upon by a suitable key, is arranged so as to pass
" into a corresponding slot or opening in the bolt, thus securing
" the advantages of an ordinary lock."

[Printed, 4*d*. No Drawings.]

A.D. 1860, March 5.—N° 598.

PRICE, Cyrus.—This invention relates to the construction of locks and latches, and consists,—

1st. In fitting to a lock a counter-motion bolt for the purpose of fastening and releasing the "main bolt," which also acts as a latch, " and has a parallel projection on its strongest part " inside the lock, and in a parallel direction with its tail, and " on which projection the said 'counter-motion bolt' slides (when " thrown or withdrawn by the key) by means of a slot in it for " that purpose."

2nd. A lock with a "cranked tail lift latch," worked on a centre or fulcrum by handles and levers in the usual way. This latch is cranked for the introduction of a counter-motion bolt, which being operated by the key, takes into a slot in the latch, so that the latch cannot be lifted until the bolt is withdrawn.

3rd. Combining with a counter-motion bolt a "nose ward" or wards, either on the bolt or on the tumblers, or on both bolt and tumblers.

4th. Combining a thumb slide or stop with the counter-motion bolt to prevent its action.

5th. Making on the end of the parallel projection, first named, a catch turning upwards to fit two grooves in a tumbler, one when the bolt is thrown out, and the other when it is withdrawn.

6th. Rounding that part of the front edge of box staples where the latch strikes.

[Printed, 6*d*. Drawing.]

A.D. 1860, March 7.—N° 620.

ARNOT, James.—This is an invention of a knob spindle adapted to door, cupboard, and drawer locks, and latches, and capable of easy adjustment to suit the thickness of different doors or places to which it is applied. The spindle is square in cross section and tubular, and is split longitudinally for a greater portion of its length. Through the hollow axis of the spindle a rod is passed, having a wedge form at one end, and a nut at the other end, which is screw threaded. When the knob is placed in position on the spindle, by screwing the nut on the threaded end of the rod the other or wedge-formed end of the rod is drawn between the split parts of the spindle, and causes them to open or expand so much as to fill the hollow cavity in the knob, which then becomes fixed by the divergent pressure of the two parts.

[Printed, 8*d*. Drawing.]

A.D. 1860, April 24.—N° 1021.

BBODIE, JAMES.—(*Provisional protection only.*)—This invention relates to bolts and latches, and to locks and other fastenings, the object being easy fastening, and secure holding.

1st. A latch with which a catch capable of independent motion is so combined, that it can be pushed aside to allow a door to shut without moving the latch, and is so connected to the latch that on moving the latter, the catch is loosened from its hold so that the door may be opened. That end of the catch whereby it is affixed to the door or the door post, is inclosed by a protecting plate, the other movable end is left exposed. Eight different designs are described and illustrated as examples of this latch catch.

2nd. A catch and keeper bolt adapted for locks. One or more catches or tumblers which fit into the keeper connected with the bolt, are attached to the lock. The keeper, a metal piece with two projecting arms, is rivetted or otherwise fastened to the bolt. The catch is a tumbler lever moving on a fixed pin. The relative position of the catch and keeper is such, that when the bolt is pushed out for the purpose of locking, say the door or cover, the catch is drawn from between the arms of the keeper and pushed aside by a spring or otherwise, and the bolt cannot be drawn back until the catch returns to its position, which is done by the action of the key. According to the number of catches employed, so in proportion will the security of a lock be increased. The manner of disposing these catches to be acted upon by the projecting bits of the key is considered important. Several modified examples of this part of the invention are also described and illustrated.

[Printed, 8*d*. No Drawing.]

A.D. 1860, April 26.—Nº 1048.

BATE, William.—This invention relates to the attaching of knobs to the spindles of door locks and latches, so as to adapt them to doors severally differing in thickness.

A distance along one end of the spindle, drilled through from one to the opposite side, is a series of holes a quarter of an inch apart, and through one of the holes, according to the thickness of the door, a screw passes into its passage through the neck of the knob. The other end of the spindle is furnished with a series of holes severally only one-sixteenth of an inch apart, and the screw which secures the knob on this end of the spindle passes through that one of this series of holes which is coincident with the screw hole through the neck of the knob, when the latter has been adjusted in the position on the spindle required to suit the thickness of the door.

[Printed, 4*d*. No Drawings.]

A.D. 1860, April 27.—Nº 1071.

WITHERS, George.—(*Provisional protection only.*)—This invention relates to the construction of wrought-iron safes, and locks for the same and for other purposes.

1st. Safes and chests are made of iron and steel plates welded together face to face, so that one surface, the inside of the combined plate, is iron, and the outside steel, such plates being corrugated or checkered on both or only on the steel surface to make them difficult to drill.

2nd. Solid bands are used either inside or outside for securing the parts together.

3rd. Making the plates to which the lock or bolt is attached, solid with the body of the safe.

4th. Lining the interior of safes and strong rooms with slate or marble, or coating the inner surface with enamel or non-inflammable fibrous or other substance.

5th. Adapting to the locks of safes, chests, and strong rooms, a contrivance for further securing and holding the bolt should attempts be made upon the lock to open it by picks or explosive substances, and in combination with this part of the invention, an alarum is to be set free.

[Printed, 4*d*. No Drawings.]

A.D. 1860, May 11.—N° 1158.

PRICE, George.—This invention relating to the construction of locks, refers,—

1st. To locks adapted for safes, and consists in curtailing the rotative action of the key, in order that the internal space available for the introduction of explosive substances, may be lessened as much as possible, the key moving round upon the drill pin only just sufficient to raise the tumblers and shoot or withdraw the bolt; to effect this in either large or small locks the requisite alterations in the mechanism are described and illustrated. The spindle is constructed of hardened steel, so that if broken by violence, that portion of it which remains in the lock will be a protection.

2nd. A simplified arrangement of spring action, for restoring the levers to their position of security when the key is withdrawn.

3rd. A constructional arrangement of a lock designed for preventing "picking by pressure, or what is known as the tentative process."

4th. Fixing knobs on an adjustable spindle for door locks. In the end of the spindle which is square, there is a hole tapped to receive a screw that passes directly through the crown of the knob into the spindle end.

[Printed, 8*d*. Drawing.]

A.D. 1860, May 16.—N° 1208.

NEWTON, William Edward.—(*A communication from Lyman Derby.*)—This invention, relating to locks adapted to doors, safes, and other purposes, "consists in forming and operating a combination lock by means of a screwed spindle and nut working in an enclosed case or barrel, in which are arranged a series of longitudinal bars; on four of these bars are arranged independently sliding tumblers, having notched upper and lower opposite corners. Transversely to the inner faces of these tumblers is made a channel or groove to correspond with a channel or groove in the face of an adjustable or combination tumbler, also arranged on one of the longitudinal bars, so that a pin on the nut or key may traverse throughout the channel to enter a guide way, in order, by the reversal of the screw, to operate on a self-adjusting detent pin or bar, having a shoulder

" on it resting on the ends of a detent spring for holding the " barrel or rock from rotating, and thus projecting the bolt out " or back.

When the combination is not free to act, this lock may be used as a common lock bolt.

[Printed, 10*d*. Drawing.]

A.D. 1860, May 23.—N° 1272.

CAVANAGH, Michael.—This invention relates to a mode of fixing knobs or handles on the spindles of mortise and other locks, so as to suit doors of different thickness, to which the required length of the spindle may be accurately and readily adjusted. The knob or handle on one end of the spindle is to be fixed in the manner usually adapted to the purpose. The movable knob is secured at the other end of the spindle by means of a lengthening piece in combination with a milled union cap or nut, adjustably held to the spindle by a screw which passes longitudinally through the lengthening piece into the spindle end, which is drilled up and screw-threaded to receive it. By this means the spindle may, when required, be removed and readily readjusted. Knobs of wood, porcelain, glass, and other substances are capable of being fixed and readily adjusted by this method.

[Printed, 6*d*. Drawing.]

A.D. 1860, May 28.—N° 1308.

CHATWOOD, Samuel.—This invention relates to the construction of iron safes, and to locks adapted to them, and to other purposes. It consists :—

1st. In making the outer case or body of the safe drill proof; this is effected by the use of strong iron plates, having one, the outer side, corrugated or checkered by a rolling process, and between the outer and the inner shell a cavity is formed whereinto molten metal is poured, which by sudden contact with the cold surface of the plates becomes so chilled and hardened as to be capable of resisting the action of cutting implements. In some cases plates with smooth surfaces are used, having metal cast in between them.

2nd. " Attaching or fixing the lock chamber to the door by a " suitably strong spring or springs so as to permit the front edge " of the door being separated from the lock chamber to a slight " extent, or as far as is permitted by catches. On gunpowder

" being put into the lock and exploded, the force of the expansion
" within the lock chamber will separate it from the door, so as to
" allow a portion of the compressed gases to escape, immediately
" after which the lock chamber and door will resume their proper
" and secure position."

3rd. Preventing the application of pressure to the levers of locks. "Instead of riveting the stump of the lock to the bolt, I
" fasten it to a separate tumbler, and fasten the tumbler to the
" bolt by a centre pin or pivot, on which it moves up and down
" on the application of pressure, and lays hold of a second stump,
" which is riveted to the back part of the lock. This part of my
" invention is also applicable to all other locks."

[Printed, 8*d*. Drawing.]

A.D. 1860, June 2.—N° 1360.

NEWTON, William Edward. — (*A communication from William A. Carpenter.*)—This invention, relating to permutation locks, consists in :—

1st. "An improved form of bolt which approximates to a
" circle, and is arranged so as to be adjusted at any desired
" point on a solid spindle, which has an index on its front end.
" The face plate of the door or lock has a circle or part of a
" circle of figures or characters marked on it, so that it may be
" fixed in any determined position which may be desired by the
" owner."

2nd. "The combination of a series of bolts of the form afore-
" said, having index spindles with a series of circles of figures or
" characters on the face of the door or lock, so that permutations
" or changes in the combination may be made."

3rd. "The combination with the bolts having index spindles
" of a turning knob or wedge plate of the same shape circum-
" ferentially as the bolts, and adapting to the bolts a series of
" spring catches with a series of short levers and stops, and a
" series of indental plates, for the purpose of preventing the
" plates or bolts from being actuated or brought into the desired
" position, except in a proper manner."

If in an attempt to open the lock pressure be applied to the bolt, the contact of the stops with the levers is destroyed, the spring clutches instantly fall into the indentations on the discs, and thus render the turning of the bolt impossible.

[Printed, 8*d*. Drawing.]

A.D. 1860, June 15.—N° 1460.

MACKROW, Isaac.—(*Provisional protection only.*)—The object of this invention, relating to alarum locks and latches, "is to
" give warning to the inmates of houses of any attempt at entry
" from the outside of street or shop doors, the warning being
" given before such entry is effected. Upon the upper and lower
" sides of the lock case are formed bosses, in which are placed
" pinions working in racks, one cut on the top of the key bolt,
" the other on the under side of the spring bolt, thus either one
" can be withdrawn by turning a handle without the use of a
" key, and dispensing with the costly mechanism usually in the
" interior of locks. On the upper side of the end of the key
" bolt (which passes through the striking box) is placed a trigger
" taking into a slot at the end of a vertical rod attached by a
" spring to a bell or bells placed in any desired part of the house,
" so that upon any attempt to withdraw the bolt, the spring rod
" becomes disengaged, which sets the bell or bells in motion,
" thus giving the required alarm."

[Printed, 4*d*. No Drawings.]

A.D. 1860, June 19.—N° 1487.

BROOMAN, Richard Archibald.—(*A communication from Auguste Theodore Baudrit.*)—(*Provisional protection only.*)—This invention relates to the construction of locks, two of which are described; one, a simple arrangement of lock, and the other termed an "unpickable lock."

The simple lock comprises in a cylindrical box a round bolt double chamfered at the end and moved by a helical spring. The arrangement of this lock allows of its being placed in the center of the door frame, and it may be fitted with a safety apparatus.

Shows a contrivance for drawing back a lock bolt or a catch, consisting of a winged piece which acts when turned in either direction, upon inclines attached to the bolt.

The unpickable lock is contained in an ordinary frame or case; the bolt carries a toothed rack which is engaged by teeth on the periphery of a plate, that also moves a latch; this plate is actuated by the key, and along with two other disc plates forms the security part of the lock. The key is of peculiar construction, and when operating, its ward-bits act upon a number of blades so as to push them against springs through mortises in the discs, in order to free the toothed plate and give it liberty to turn. Parts of these locks are applicable for securing casements, window sashes, and shutters.

[Printed, 6*d*. Drawing.]

A.D. 1860, June 21.—N° 1508.

EASTMAN, William Pitt. — (*A communication from Henry Burt.*)—This invention relates to the construction of a simple kind of bolt, adapted as a fastening to doors, gates, and windows. The bolt slides in a small frame or box, with end plate, through which the bolt is shot. The frame is recessed into the door or gate post, so that its face and end plates are respectively level with the front and side of the post. The bolt is moved by a button carried by a piece which it turns on an eccentric center that is pivotted to the frame at the back of the bolt, the piece passing through an angular opening in the bolt, and through the front plate. If a thin plate of metal instead of a staple be affixed to the door, the operation of the bolt will not be effected at any time, should the door shrink or settle.

[Printed, 6*d*. Drawing.]

A.D. 1860, June 26.—N° 1550.

HUDSON, William Henry, and EVANS, John.—(*Provisional protection only.*)—This invention consists in the application to locks of a drill proof shield or curtain plate, for the purpose of closing the keyhole or passage. When required to apply the key, the curtain plate is set free to slide by bringing a number of discs on spindles, each disc having a tooth or point, to engage with one of a corresponding number of stops, which by contact therewith hold the plate. The spindles may be moved by a screwdriver or another key, and according to the number of discs employed, so is the number of combinations of which they are susceptible increased, and as the curtain plate is only set free by one, to be known only to the owner of the true key, there will be considerable difficulty in picking a lock to which the invention is applied.

[Printed, 4*d*. No Drawings.]

A.D. 1860, June 29.—N° 1573.

WHITEHOUSE, John.—This invention relates to the manufacture of metallic knobs of different kinds, to fixing door knobs on the spindles of locks, and to fixing knobs with catches on cupboard doors, including knobs of china or glass.

1st. To prevent the unloosening of the body of a door knob from the neck, several tongues are formed on the edge of the thin metal disc, which is afterwards worked into the spherical shape to form the body, and corresponding recesses are made to receive these tongues in the flange of the neck. Small knobs for cupboard doors have their screws, instead of being cast in the neck, concentrically fixed, projecting from a disc grooved round its edge to receive the edge of the body of the knob, the groove being subsequently closed by pressure. Other modifications are described.

2nd. Describes a method of fixing door knobs on the spindles of rim locks, also of mortise locks, the square spindles being screw-threaded at the corners to enter a socket screw, which passes through the crown of the knob. Mode of fitting the roses to door knobs of metal or china. Also the fitting of knobs with catch arms or turns for cupboards.

[Printed, 10*d*. Drawings.]

A.D. 1860, July 17.—N° 1731.

LOYSEL, Edward. — (*A communication from Viscount de Kersolon.*)—This invention relates to the manufacture of locks constructed on the permutation principle.

Any convenient number of cylindrical or tubular pieces are combined concentrically one within another, each having marked on one, the outer end or edge, letters, figures, or devices; the other ends of the cylinders which have teeth or notches engage with similar teeth or notches in a second set of cylinders. The mechanism of the lock is operated by a central spindle which, passing through a socket within the cylinders, answers for the key, is permanently attached to the lock, and has a knob or button at its other end. In order to act upon the bolt or bolts of the lock, the key must first be drawn back, and this is not possible unless the cylinders are arranged in a position relatively in accordance with a predetermined combination, and this should only be known to the owner or his confidants.

These locks may be fitted with latch bolts, which without detracting from the security of the lock, may be dispensed with, and a night bolt, catch, or click, may be adapted to the locking bolt *or bar*.

Various mechanical contrivances may be devised for transferring motion from the central spindle to the bolts, such as rack and pinions, vibrating levers or arms, pins or teeth taking into holes or notches.

Several modifications are described and illustrated.

[Printed, 1s. 2d. Drawings.]

A.D. 1860, August 9.—N° 1931.

NEUMANN, Anton.—(*A communication from Franz Xavier Kientzle.*)—(*Provisional protection only.*)—This invention relates to the hanging and fastening of room or closet doors, box and other lids and covers.

"It is proposed to apply a sliding rod or bar to each side or " edge of a door or lid, such sliding rods or bars forming either " the hinge pin of the door or lid, or the fastening of the same, " according to the side on which the door or lid is opened. A " handle is provided on each side of the door, by partially turning " either of which the sliding rod corresponding therewith " may be disconnected from the hinge sockets and the door or " lid consequently opened on that side, whilst the opposite bar " or rod remaining engaged in the hinge sockets serves as the " hinge upon which the door or lid turns. Either of the sliding " bars may be disconnected from their sockets, as desired, and " the door or lid thus made to open on either side or edge. Suitable " appliances are used for locking or fixing both the bars " when the door or lid will be prevented from opening in either " direction, and means are employed for preventing both bars " from being disconnected simultaneously. In dressing cases " and other box lids the same result may be obtained by fitting " them with double folding hinges. It is obvious that various " simple mechanical appliances may be used for imparting the " sliding motion to the bars or rods from their actuating handles " or keys; but the method preferred is a rack and pinion or a " wiper working in a notch in the bar or rod."

[Printed, 4d. No Drawings.]

A.D. 1860, August 23.—N° 2032.

SPENCE, William.—(*A communication from Solomon Andrews and Thomas Morrell.*)—This invention relates to the construction of padlocks, and keys adapted to them.

"The case of the padlock is constructed in one piece of wrought " *iron. For this* purpose the plate or piece of sheet metal is cut

" out of the required form, the edges are turned up, and the " plate doubled or folded together, and the construction is com- " pleted by rivetting the required parts together. The snatch or " holder for the end of the shackle bar has a spring connected " to it, the tail of which acts on the reverse end of the shackle to " throw it out when the lock is unlocked. This snatch or holder " is also formed so as to present its edge to the key, but it has a " flange or enlargement at one side of it, by acting against which " alone it is vibrated, and the bit of the key has a slit formed in " it corresponding with the position of the snatch. By this " combination of the snatch and key the lock is closed against " all false keys."

"In another construction of padlock the shackle is combined " with several hooks or holders, by which it is secured, which " hooks are kept from getting out of position by tumblers. The " hooks or holders are notched in different positions to receive " the tumblers. The positions of the notches being different, " allow of variations in the bit of the key, to prevent the lock " from being readily picked."

[Printed, 8*d*. Drawing.]

A.D. 1860, September 8.—N° 2172.

HOARE, Deane John.—(*Provisional protection only.*)—This invention, applicable to common warded locks as well as to ordinary lever or tumbler locks, consists in substituting for the ordinary back and forward motion of straight bolts in locks, a compound action, the bolt being caused to lie at an angle or incline, and after having by a suitable key been projected forward, has, for the purpose of changing its longitudinal position, again to be acted upon, in order to prevent its being forced back externally or otherwise by an improper key or instrument. To this end are employed two keyholes, or one with two centers of rotation to be separately used, one for throwing the bolt back and forth, and the other, the key being withdrawn and reversed, for raising the inner end of the bolt to place it in a new or secure position. Instead of one, two keys may be employed. With bankers' locks a small secondary lock may be combined to secure a strut piece or locking bar, which is made to support and make fast the tail end of the bolt.

In the construction of latch locks, the parts are modified.

[Printed, 4*d*. No Drawings.]

A.D. 1860, September 15.—Nº 2250.

NEWTON, William Edward.—(*A communication from Edouard Louis Poirier.*)—This invention relating to the construction of locks, consists in adapting a contrivance or apparatus for so barring the entrance to the internal mechanism of the lock, that before the key can gain access to operate therein, it must first clear a passage, and in order to do this it is introduced into the outer one of two keyholes or openings. On pushing it forward it penetrates into a chamber, and when turned therein to the right it engages with a guard plate requiring the proper key to operate it. The key by striking a catch acts upon a spring bolt and thereby causes a plate, which covers the inner entrance to the lock, to move on an eccentric center. The key is then pushed forward through the inner keyhole on to a center pin, and having been turned again and raised two pieces simultaneously, it is free to act upon the bolt. When the key is withdrawn the parts by means of springs or otherwise resume their normal position. A spring bolt moved by the key or by hand, may be adapted to the bolt, the parts of the apparatus being susceptible of modification.

[Printed, 8d. Drawing.]

A.D. 1860, September 22.—Nº 2310.

FALLOWS, Thomas, and WILD, Richard.—(*Letters Patent void for want of Final Specification.*)—This invention relates to fasteners for window sashes. Instead of, as in an ordinary fastening, fixing a staple to one sash and jointing a latch to the other, the latch is retained within the staple by means of a spring catch, which can only be liberated inside the room or place, and is capable of being made fast by a lock and key of suitable construction, or the bolt of the lock may be contrived to retain the latch within the staple, the fastener and the lock being combined or otherwise.

[Printed, 4d. No Drawings.]

A.D. 1860, October 12.—Nº 2486.

NEWTON, William Edward.—(*A communication from Augustus Reeve.*) This is an invention of a bolt adapted for fastening window blinds and shutters, either when closed or partially open.

The bolt has a longitudinal and a rising and falling motion, and is fitted within a suitable case. "The socket which receives " the end of the bolt is constructed in a similar way, and is pro- " vided with an opening in its back plate, which opening forms " the orifice of a supplemental socket to receive the bolt when " the shutters are secured in a bowed state."

[Printed, 6*d*. Drawing.]

A.D. 1860, October 26.—Nº 2610.

SHARPE, WILLIAM.—This invention relates to latches and latch locks, and applies :—

1st. To latches and latch locks for field and entrance gates, and the doors of outbuildings which are liable to sink, so that the latches employed will not catch, or they become unfastened. This is avoided by giving the latch the form of a cranked lever and weighting one end, and so fixing it that the latch is kept against its catch or returned to it by the weight.

2nd. Catches for latches are made to yield when the latch passes in the act of closing, but to return to the right position for holding when the latch has passed.

3rd. A slide clip is sometimes employed to connect the latch and catch to a plate, in which case a key is required for opening and closing.

[Printed, 8*d*. Drawing.]

A.D. 1860, November 1.—Nº 2672.

UNDERHILL, JAMES.—This "invention relates to that class " of lever bolts for casement or window sashes which have a stop " catch to retain them when in the fastened position, and the " improvements consist in so combining the ordinary spring and " bolt, which moves on an axis or pin, that the tension of the " spring shall have such effect on it as to give motion to the bolt " at all points of its traverse (the quadrant described by the bolt) " unless restrained by a suitable stop, this tendency to motion " being always in one direction, and by preference with greater " force when the sash or casement is fastened than in any other " position. For this purpose I form the tail end of the bolt " or lever on which the spring acts of a curve or portion of a " circle eccentric to the central pin or fulcrum of the bolt, or " of other suitable form, whereby to sustain and render the action

" and effect of the spring such as above-described, by this means
" a smooth and facile movement is insured in the action of the
" fastening. When sashes or casements are secured by this
" fastening, the bolt is held in position by a catch which clips
" and holds the bolt, the grip being further insured by the tendency
" of the bolt to return to its normal position. This catch
" may be simply a small thumb lever dropping on and embracing
" the bolt, or it may be a spring or other kind of catch rising
" from beneath, which is depressed if it is desired to release the
" bolt. When the bolt is released by the lever, spring, or other
" catch adopted, the bolt flies back to its normal position and
" disconnects or unfastens the casement or window sash or
" sashes. This fastening is applicable to 'French windows' as
" well as to other hinge and sliding sashes."

[Printed, 8*d*. Drawing.]

A.D. 1860, November 2.—N° 2685.

HAMILTON, George.—This invention relates to locks so constructed that, should an attempt be made to press back the bolt for the purpose of picking, the bolt is immediately stopped by an instrument brought into action by such pressure. To this end the tumblers are mounted on a movable axis fixed at one extremity of a bell-crank lever, which is capable of oscillating on a pin fixed projecting from the lock plate, springs constantly acting on the tumblers to press them forward. When pressure is applied to the bolt the tumblers recede, and the free end of the lever is brought down into a notch formed in the bolt, which notch being obliquely undercut and the lever end shaped correspondingly, all further pressure on the bolt has the effect only of causing the lever end to slide deeper into the notch. The lock is fitted with a detent bolt.

For use in some cases, a modification is described.

[Printed, 8*d*. Drawing.]

A.D. 1860, November 16.—N° 2827.

MORRISON, Alfred.—(*Provisional protection only.*)—This invention relates to locks having bolts composed of several pieces, separately capable of to and forth sliding motion, each piece being independently pressed forward by a separate spring. The key acts on intermediate pieces, each of which presses back one of the bolt pieces by engaging with a projection wherewith each piece is furnished, bringing a notch in each bolt piece relatively into coincidence to receive a detention catch which is pressed upon by a spring. The key in its further rotation acts upon a lever, the other end of which serves the purpose of a latch. The position of this lever is so contrived, that if depressed too far by the key the detention catch is raised, and the bolt pieces are shot out by their springs. Another lever is employed for liberating a second bolt in case any attempt be made to pick the lock, which second bolt is not accessible to any instrument passed through the keyhole, and is capable of withdrawal by the proper key to be again detained by the catch, the key having for this purpose an upward movement.

[Printed, 4d. No Drawings.]

A.D. 1860, November 20.—N° 2842.

BROOMAN, Richard Archibald.—(*A communication from Louis Alexandre Farjon.*)—This invention relates to apparatus adapted as a stopper for bottles and such like articles, and partly applicable as a fastening for the doors of rooms and cupboards.

The "stoppers are composed of two parts, the lower of which " is capable of being drawn within the upper; a ring of india-" rubber surrounds the lower part, and rests upon the bottom " edge of the upper in such manner that on the lower part being " drawn within the upper part the ring of india-rubber is com-" pressed longitudinally and expanded against the sides of the " neck of the bottle. The parts are connected by a threaded " spindle, which is made to enter a correspondingly threaded " socket, which on being turned in one direction expands the " ring, and causes the stopper to fit tight, and when turned in " the contrary direction, contracts it and allows of the stopper " being readily withdrawn. A knot may be affixed to the socket " for the purpose of turning it, or the socket may be so formed " at top as to require a particular key to work it."

Fastenings. "By fixing a threaded spindle or rod to the frame " or jamb against which the door of a cupboard, or of a room, or " any door closes, and by attaching to the door or inserting " within it a correspondingly threaded socket, and causing the " socket to turn upon the spindle, the door may be effectually " fastened. As in the previous case a knob or key may be

" employed to work the socket. The same principle of construc-
" struction is applicable for fastening lids, shutters, drawers, or
" any other like closing devices."

[Printed, 8*d*. Drawing.]

A.D. 1860, November 26.—N° 2894.

TRAIN, George Francis. — (*A communication from Ralph Nowell Musgrove.*)—This invention relates to appliances adapted to street railway carriages, consisting of:—

1st. A rail clearer, carried in front of the leading wheels of carriages for the purpose of shifting obstructions.

2nd. A folding seat for the driver or conductor.

3rd. A spring slide, adapted to prevent rattling of the windows of railway carriages and omnibusses.

4th. A window or shutter catch or bolt for railway and other carriages, has an **S** form, is placed in a recess made in the edge of the shutter or window sash, and is actuated by a small vertical bar engaging, by means of a projection about its midlength, with the upper curved part of the catch.

5th. A catch and handles for the sliding doors of railway omnibusses and for screens, consists of a bent lever fitted to work in a mortise box, and having its inner arm bent upwards, and its other arm, which is formed with a latch hook, is in an open recess and kept constantly depressed by a wire spring on the axis or fulcrum, in order that the latch hook may engage with the staple when the two meet and are pressed together. The latch is disengaged by loop handles, one on each side the door.

[Printed, 8*d*. Drawing.]

A.D. 1860, December 13.—N° 3071.

CHUBB, John, and HUNTER, Ebenezer.—This invention has for its object improvements in locks which, in order to prevent the application of gunpowder for the purpose of bursting them open, are constructed in the following manner:—

" A guard is introduced, the greater portion of which is con-
" centric with the drill pin, but the two parts which enter the
" tumblers are in directions concentric with the main stump on
" which the tumblers move. The upper edge of the guard is
" recessed or rebated for the reception of the disc of the curtain.
" A blank tumbler is applied over the other tumblers, having a

" recess or rebate at its lower edge to correspond and be flush
" with that in the guard, thus completing a circular bearing
" for the disc of the curtain. A stud, nib, or pin is applied or
" formed on the blank tumbler to press on the edge of the
" curtain when the curtain is turned by the key, and there is a
" corresponding recess or notch in the edge of the curtain into
" which the stud, pin, or nib enters when the curtain is brought
" into a position to admit of the key being removed from the
" lock. The tumblers of the lock are so constructed that no open
" parts shall be accessible from the keyhole of the lock, either
" whether a key or instrument capable of acting on the tumblers
" is in the lock or not. Over the curtain and the guard, and
" also over parts of the blank tumbler, a safety cap or cover is
" applied with a projecting escutcheon, which passes through
" the main cap of the lock. To the bolt head is applied a piece
" of vulcanized india-rubber or other suitable material, in such
" a manner as to render the bolt hole air-tight as far as possible,
" and all the junction edges between the cap and plate of lock
" may be made air-tight by white lead or any other air-tight
" composition."

[Printed, 10*d*. Drawing.]

1861.

A.D. 1861, January 11.—N° 84.

FOOTE, ALFRED MILLS.—This invention relates to a locking apparatus adapted for the safe keeping of umbrellas, canes, parasols, and similar articles deposited in stands. This device
" consists of two discs or plates formed with notches extending
" to their centres of a size sufficient to receive the umbrella
" handle, cane, or other article; one of these discs is permanently
" attached to an umbrella stand or other support, and formed
" with a circular flange surrounding the other disk. The two
" disks are so connected that they are held together, but the one
" disk can be turned upon the other and within the surrounding
" flange. Between the two disks are one or more latches or
" catches, taking studs or notches in such a manner that the one
" disk cannot be turned upon the other until the latches or

" catches are acted on by a suitable key which I prefer to be " made flat and numbered to correspond with the lock to which " it is adapted. By entering the umbrella stick, cane, or other " article into the notches aforesaid when they coincide, and then " giving the disk a partial rotation, the said article is retained " within nearly a circular hole, and the catches prevent the disks " being turned until the proper key is applied; rings may be " provided above or below the said lock to receive and guide the " articles if required."

[Printed, 8*d*. Drawing.]

A.D. 1861, January 14.—N° 105.

WEABER, HENRY.—(*Provisional protection only.*)—This is an invention of a window fastening, incapable of being opened from the outside by passing a knife or blade between the sash bars and pressing back the spring bar from under the catch.

It "consists in fitting in the bed of the catch a spring having " on it a projection inclined on one side, and on the further side " of the catch a knob or pin. On bringing forward the bar it " rises over the inclined projection, which as soon as the bar has " passed, rises and prevents the bar being forced back, and the " fastening opened until the spring on which the projection is " fixed has been depressed by the pin or knob at the further side " of the catch."

[Printed, 4*d*. No Drawings.]

A.D. 1861, February 9.—N° 324.

GRIMSHAW, O'DONNELL.—(*Provisional protection only.*)—According to this invention relating to the construction of locks, " it is proposed to employ a moveable plate or shield, which is " so arranged as to cover the keyhole when not in use, and when " moved out of the way so as to expose the keyhole it will lock " the bolt until the key has been inserted and the shield returned " to its place again. The key is turned by a suitable handle " carried by the shield, the act of returning the shield over the " keyhole again releasing the bolt so as to admit of it being " moved by the key. The key is made sufficiently short to be " entirely enclosed within the lock, a square head being made on " it to fit into a corresponding hole in the inner end of the knob " or handle. In cases where a very thick door is used, and where " *consequently* it would be inconvenient to insert the key home

" in its place, a stem or carrier may be employed, to which the " short key is fitted, this stem readily detaching itself from the " key and leaving it in the lock or attaching itself to the key " for the purpose of removing it from the lock. In connection " with the shield or cover above referred to there is a guard " which effectually conceals the wards of the lock when the key- " hole is open, but uncovers them again on the closing of the " keyhole when the key is to operate."

[Printed, 4*d*. No Drawings.]

A.D. 1861, February 18.—N° 401.

PRICE, Cyrus, and PRICE, Elihu.—This invention relating to locks and latches, is in part supplemental to previous letters patent, dated March 5, 1860, No. 598, and consists of additions to the receding levers which move in the direction of the bolt when improper attempts are made to force it; to a burglar indicator applicable to locks and latches generally; and to a method of adjusting the latch or the staple of lift up latch locks.

The addition of a detector lever is made to the receding levers. This detector lever has a double motion, flying up when either false keys or end pressure on the head of the bolt is applied, the second motion being caused by a spring which presses upon a V-shaped projection formed on its tail end. The gatings of the levers have additional notches, into which the stump falls when attempts are made to pick the lock by the tentative process.

The burglar indicator is a lever so constructed as to cause a secret bolt to fly out when attempts are made to pick or force the lock. This indicator lever is pivotted to the top lever, and placed crosswise in relation thereto.

Making the box staple for lift-up bolt locks and latches capable of adjustment, in order to suit the altered position of doors which sink or wear on their hinges.

[Printed, 8*d*. Drawing.]

A.D. 1861, March 18.—N° 675.

ARROWSMITH, John.—(*Provisional protection only.*)—This is an invention of apparatus designed for fixing, at any required height, the windows of railway and other carriages; it is described as follows :—

Fixed on the side of a carriage window is "a strip of brass or " iron in which a series of holes are made, the said series of holes

" extending from nearly the top to the bottom of the said frame " at about two inches apart. In the part of the door in which " the window slides is a small lever, the upper end of which is " pressed by a spring against the strip of brass or iron on the " window frame. A thumb plate connected with the said lever " enables the occupant of the carriage to raise the end of the lever " from the said plate. In order to fix the window at the required " height the thumb plate is pressed and the window raised to " the required position. By now liberating the thumb plate the " end of the lever is pressed into one of the holes in the brass " or iron plate on the window frame, and the window is thereby " fixed. By pressing the thumb plate the window may be allowed " to fall, but the sudden fall of the window is in this case prevented by the lower end of the lever pressing against the brass " or iron plate in the window frame, the same action of the thumb " plate which liberates the upper end of the lever causing the " lower end to press upon the plate. One of the said plates with " holes may be fixed on either side of the carriage window frame " and a lever provided to engage in each of the said plates. The " said levers may be worked from one thumb plate fixed on an " axis connecting the said levers."

[Printed, *4d*. No Drawings.]

A.D. 1861, March 19.—N° 683.

WILKINSON, SAMUEL JAMES, and MEAKIN, GEORGE FREDERICK LEE.—This is an invention of window fasteners which are operated by the shutting-to of the windows, and also of apparatus to prevent windows partially raised being further opened from the outside.

Describes a self-acting sash fastener, acting by means of dovetails and a spring catch which, when the window is required to be open, is pushed back by a hand lever or otherwise.

Another contrivance with similar action is also shown and described, combining a splay hook, a spring catch, and a releasing apparatus.

The mode of fixing sashes partly open is, it is stated, particularly applicable to kitchen, area, and ground floor windows. A plate slotted at intervals is fitted to the inside of the sash, and a catch is forced by a spring into one or other of the slots according to the height the window is raised, the catch holding it in that position so that it cannot be raised higher, but offering no impediment to its being closed.

[Printed, 10*d.* Drawings.]

A.D. 1861, April 9.—N° 871.

WESTBURY, William, and COOKE, Edward.—This invention, relating to fasteners adapted to windows and other purposes, consists of " a sliding metallic plate, which is made to slide and " engage under a button or head passed through a slot or open- " ing. The said button or head is situated on one of the parts " to be fastened, and the slide and slot or opening in the other " part."

" In applying our invention to the fastenings of windows, we " make an arm on one part of the window turn over the other " part of the window, the said arm engaging under the head of " a button on the latter part of the window. A slide on the said " arm on being advanced until its forked end engages under the " said button, secures the said arm, and prevents it from being " moved by a knife or instrument introduced between the two " parts of the window.

Modifications in which the parts are disconnected are shown and illustrated.

[Printed, 10*d.* Drawings.]

A.D. 1861, April 10.—N° 882.

MOREL, Auguste Victor.—(*Provisional protection only.*)—This invention, relating to the construction of locks, consists in the use in locks of four or more bolts, in addition to the principal bolt, all being so combined as to form one bolt. The additional bolts are to be actuated by movable claws or bits on the key which are capable of adjustment on the principle of permutation. All the bolts are furnished with projecting studs to engage with a toothed rack, which is in gear with a revolving pinion when the bolt is shot out. The bits of the key act upon a number of detent pawls, that are thereby lifted against the reaction of springs out of notches in the bolts, there being one pawl to each.

An ordinary latch may be adapted to the lock.

[Printed, 4*d.* No Drawings.]

A.D. 1861, May 2.—N° 1098.

WINKLER, Michael.—This invention, relating to the construction of auxiliary apparatus adapted to locks, consists in fitting to the front part of the lock, concentric with the keyhole, a projecting barrel or socket, interiorly furnished with a series of annular and longitudinal grooves, and in the barrel is placed a number of discs, which have projections to fit into the longitudinal grooves, and when the key is withdrawn, are severally pressed forward against each other by springs. The key has formed upon its stem (a separate one for each disc), a series of shoulders, projections, or slits, for the purpose, as the key is pushed into the keyhole, of carrying or pressing the discs down the barrel, and bringing them respectively into exact coincident position to enter simultaneously the several grooves, the distance apart of the latter and the shoulders or slits of the key precisely corresponding, so that the projections on the discs are then free to enter the annular grooves in the barrel and permit the key to turn and operate the bolt. In addition to the legitimate grooves, a number of false ones are formed in the barrel for the purpose of deceiving picklocks.

Describes various modifications of this safety apparatus, including a mortise lock fitted with two of the safety apparatus, one on each side; an adaptation of the apparatus to rim locks; an arrangement of auxiliar tumblers to heavy locks, and a method of closing keyholes.

The number of discs employed, their shape, and the corresponding form of the grooves in the barrel, may be varied.

[Printed, 1s. 4d. Drawings.]

A.D. 1861, May 22.—N° 1299.

MATTHEWS, Samuel Parkes.—(*Provisional protection not allowed.*) This invention, relating to locks, lock spindles, and knobs, is described as follows:—

1st. "An additional security by changeable guards contained "in a portable box, which said box can be applied to any other "door lock."

2nd. "Having self-ajusting spindles with slide crabs, which "defies the possibility of stealing the outer knobs (a common "and increasing evil), and to prevent such depredations is the "origin of the aforesaid."

[Printed, 4d. No Drawings.]

A.D. 1861, June 4.—N° 1394.

ALLMAN, Herbert.—This invention relates to the construction of fasteners for window sashes, a variety of which are described and illustrated, consisting of:—

1st. A fastener or hooked arm, caused to revolve on a fixed center by a tangent screw, is so fitted to one sash that the hook at the extremity of the arm shall engage, when the latter is moved round by the screw, with a projecting piece fixed on the other sash.

2nd. A spring bolt fastener, which is closed by first pushing the head of the bolt through the metal piece on the other sash, and then turning the bolt.

3rd. Modification of a fastener in general use, a spring being arranged to draw the parts of the fastener together when being closed.

4th. A fastener with leg, which turns over on a center so as to bring the point of a screw, which it carries at its free end, into position to set into an inclined notch formed in a piece attached to the other sash, whereby the sashes are drawn together and fastened.

5th. A kind of lever fastener, acting by means of a cam.

6th. A plate mounting a bent lever with catch is fixed to one sash to engage with a corresponding catch projecting from the piece carried by the other sash.

7th. A fastener which operates by means of a bolt in a socket furnished with a helical slot that gives a longitudinal movement to the bolt when it is turned.

8th. A fastener fitted with a bolt which carries a helical thread to engage with a fixed groove or notch.

9th. Fastener operated by a pinion, which engages with a segmental rack eccentrically disposed.

[Printed, 10*d*. Drawings.]

A.D. 1861, June 6.—N° 1420.

COLES, Henry Thomas.—This invention relates to mechanical contrivances applicable (it is stated) in the construction of locks and bolts, gun locks and gun breeches, catches for shuttles, and in a variety of other ways, and for other purposes. It is, as regards locks, described as follows:—"A circular flat piece of metal is " formed and a circular groove is made on each side of shallow

" depth, and of the width of about, say, one-eighth of the diameter of the distance of, say, one-third of the diameter measuring from the outer rim of the piece of metal; and, secondly, a straight cut is made of the depth of, say, one-fifth of the diameter of the piece of metal, leaving the piece of metal with one straight side. Thirdly, a curving cut is made commencing on the said straight line at the distance of one-eight of the diameter of the said piece of metal from the outer rim, and one-tenth (say) of the diameter in width until an imaginary line is reached running at right angles with the before-mentioned straight line, forming the end of the curved cut. Fourthly, a centre action is formed and a perforation or cone on one side. A double screw (when adopted) is placed in a case together with the first-described piece or one of its respective variations forming a screw, bolt, or lock which is turned by the key, a small sheath for one end of the screw being placed within the lock."

[Printed, 1*s*. Drawings.]

A.D. 1861, June 7.—N° 1446.

BENNETT, SAMUEL, the younger.—(*Provisional protection only.*) —This invention relates to the utilization of pieces of waste iron or other metal tube, and to their use and adaptation in the construction of the cases and parts of locks, and for a variety of other purposes.

Pieces of waste iron or other metal tubing are when the metal is not sufficiently ductile, first heated, then slit by a rotary cutter, and afterwards flattened out. They may then, if necessary, be reheated and passed between rollers, producing small sheets or plates which may thus be reduced to the thickness required to suit the use or purpose to which they are to be adapted.

The heating of the metal may be dispensed with in the process of preparing for re-use, copper or brass scrap, tubing, or waste.

[Printed, 4*d*. No Drawings.]

A.D. 1861, June 19.—N° 1577.

PRADEL, PETER.—This invention relates to a clasp or permutation lock or fastener adapted, without the use of a key, to the securing of doors, boxes, and for similar purposes. In a chamber *fitted concentrically* to the back of a dial plate, which is regularly divided and marked similar to an index or clock face, are loosely disposed one within another, two or more barrels, each one being capable of moving independently of the rest. Each barrel is connected with hands or pointers on the dial, and when all are set to a certain position, square notches cut across their ends develope a curved groove, which intersects the common centre. A lever or latch with its tail end mounted on a pivot fixed at the point or center of the curved groove, is furnished with a stud which projects from its back, and with the lever is free to traverse the groove either for latching or unlatching when the notches in the ends of the barrel are, as regards the formation of the groove, relatively coincident.

Padlocks may be constructed on this principle, the loop being formed in two parts, respectively capable of opening and closing upon the lever when it has passed the groove.

[Printed, 8*d*. Drawing.]

A.D. 1861, July 6.—Nº 1719.

REID, JOHN EDWARD.—(*Provisional protection only.*)—This invention, relating to a "window sash fastener and draught ex-" cluder, ... consists of a hollow bar of brass or other metal, " fixed horizontally on (and the entire width of) the upper side of " the meeting rails of sashes to ordinary windows, immediately " over the cavity formed by the junction of the inner and outer " sash. It is fixed by means of a continuous hinge partly let " into the wood of the inner sash rail, and being in shape half " round or semicircular in section, it forms, when closed, a bridge " over the before-mentioned cavity, its opposite edge falling into " a small groove cut in the outer sash, thereby effectually exclud-" ing all draft. The ordinary catch of the present sash fastener " is not required, in lieu of which the hollow bar is made solid in " the centre or point opposite the bolt, and a quadrant-shaped slot " is cut in a transverse and also in a horizontal direction to allow " of the free traverse of the spindle of the bolt. The security of " the fastener from being opened from the outside is made perfect " by means of the part below the slot being solid, and which acts " as a shield against the insertion of any instrument for the pur-" pose of forcing back the bolt. The shaking or rattling of the " sashes by the action of the wind is prevented, first in a hori-" zontal direction by the bar clipping both sashes; and secondly, " by a small flush bolt at each end of the bar passing into the pulley style. The bar is bolted by means of a knob spring bolt enclosed in a brass box, and a corresponding slot (to that “ before mentioned) is cut in the top of the box to allow the bolt “ to traverse home through the horizontal bar, which securely “ bolts the same. The bolt and spring being enclosed . . . . . “ prevents all accumulation of dust, &c. as is found by the use “ of the ordinary fastening now in use.”

[Printed, 4*d*. No Drawings.]

A.D. 1861, July 17.—N° 1799.

REDFERN, Charles Edward.—(*Provisional protection only.*)

—This is an invention of a lock adapted to securing umbrellas in stands, and applicable to padlocks and other useful purposes. The lock is contained in a flat circular metal case, which is about three inches diameter and half an inch deep, and has a parallel slotted opening radiating from the center. Within the case is loosely fitted another metal case of corresponding shape, to which is adapted a spring bolt in the form of a bell-crank lever, having one of its arms straight, and the other arm is curved and has a hole through it to receive a stud fixed in the inner case to act as a fulcrum for the spring bolt, which is notched at the angle for projecting pieces on the outer case to catch against, in the event of any improper attempt being made to open the lock except by the proper key, which consists of a flat piece of metal with two longitudinal slits relatively differing in length. These slits pass over two pins or studs fixed in a plate, which is screwed to the inner case and has a broad notch on its edge for the reception of the key. The two cases are so fitted together that one has liberty to turn within the other. When the lock is closed the radial slot in the inner case is crosswise of the slot in the outer case, so that whatever was passed into the slots when coincident in position, cannot be afterwards withdrawn.

“ To open this lock the key or flat piece of metal aforesaid is “ inserted and held pressed into the opening in the edge of the “ inner case with one hand, and with the other hand the case is “ moved round by means of a small knob affixed thereto, th “ effect of this is to carry the key round in the case, which i “ necessary to force and hold the catches on the bolt out of t “ way of the stops on the outer case in order to effect the unlocki “ of the lock.”

[Printed, 4*d*. No Drawings.]

A.D. 1861, July 22.—N° 1835.

MENNONS, Marc Antoine François—(*A communication from François Julien Toulze.*)—(*Provisional protection only.*)—This invention, relating to the construction of locks, consists:—

1st. In the adaptation to locks of different kinds, of spiral springs, fixed by means of a metallic scutcheon to the external plate, for the purpose of giving movement to a spindle on which the barrel of the key fits.

2nd. "In the application to such locks of an independent ward, " similar to those of the key, set at the lower extremity of the " spindle, which is either squared off or provided with one or " several stops corresponding with an equal number of slots " formed at the open end of the barrel of the key."

The form and arrangement of the stops which compel the independent ward to follow the movements of the key may be varied; they may be fitted either to the interior of the key barrel or to the exterior of the spindle, so as to be in a position suited to the mechanism of the lock, and within range of the action of the key.

[Printed, 4*d.* No Drawings.]

A.D. 1861, July 24.—N° 1850.

HIRSCHFELD, Ferdinand.—(*A communication from Jean Baptiste Haffner and Jean Pierre Haffner.*)—(*Provisional protection only.*)—This invention relates to the construction of locks, and consists, according to one arrangement, in the use of a key having near the end in lieu of a ward-bit one or more projecting rings or collars, its extreme end being square or otherwise shaped to fit into a hole of corresponding form in a guard plate, which is partly turned thereby. The collars act upon notched tumbler plates, two of which when three are used, are hinged to a lifting plate which is raised by the guard plate, the third tumbler situate between the other two, being pivotted to the main plate of the lock. A projection on the third tumbler enters the notches in the other tumblers when the lock is ready to open; the tumblers are pressed by springs against the rings or collars on the key, so that unless the diameter of the rings and the form of the tumblers correspond relatively, the lock cannot be opened. The main bolt is operated by pins on the guard plate, and the spring bolt by the intervention of a bell-crank lever which is carried by the main bolt.

Describes another arrangement adapted for either small articles or large safes, and partaking somewhat of the "Bramah" principle of construction. When the key is inserted, its end divided by slits pushes forward a number of small rods or spindles by means of projections on the latter, which enter the slits; the rods are released from holes in a safety plate, a bit on the key when the latter rotates turns the barrel, and a bit on the principal spindle operates the mechanism which shoots the bolt. This latter spindle in large locks is dispensed with, and in lieu thereof, a rod carrying a bit is fixed to the lower part of the barrel.

[Printed, 4*d*. No Drawings.]

A.D. 1861, July 30.—N° 1902.

HART, JOHN MATTHIAS.—This invention relating to the construction of locks and fastenings, consists in :—

1st. So forming the tumblers with spaces and projections between the gating and the part acted on by the key, so as to interfere with opening by illicit means.

2nd. Forming an incline on the front edge of the stump, and a corresponding incline on the levers or tumblers, in order to make the passage of the stump more facile.

3rd. In order to leave only just sufficient space for the action of the proper key, applying a wall or plate of metal to the bolt.

4th. Various means and appliances for increasing the security of locks, and afford additional facility for opening them with proper keys.

5th. Applying "a plate" or "a dog" attached to the bolt of " double locking locks, adapted to partially close the keyhole after " the first bolting, and thereby prevent the introduction of any " other than a 'master' or second locking key.

6th. Throwing the main bolt by turning the nozzle or keyhole, and so forming the latter that it will indicate the position of the main bolt, whether locked or unlocked.

7th. So connecting the main stump with the drill pin or part on which the key turns, that any improper motion given to the drill pin shall displace the main stump.

8th. Enlarging the shaftway of the follower for the purpose of obtaining compensating means to admit of irregularities in fitting the spindle and handles of locks.

9th. Relates to the knobs and spindles, referring to the fitting and adjusting, and to the working of the latter.

[Printed, 3*s*. 8*d*. Drawings.]

A.D. 1861, August 5.—N° 1943.

BROOMAN, RICHARD ARCHIBALD.—(*A communication from Auguste Théodore Baudrit.*)—This invention relates to the construction of locks and fastenings, and to keys applicable thereto. A variety of these locks are described and illustrated, consisting of:—

A safety lock the bolt of which has a constant tendency to be projected by a spring. The knob spindle carries a crank arm, which draws back the bolt by means of a connecting rod. The key enters the lock through a frame or barrel projecting from the face plate, and passes through a tube which rests at its inner end on a helical spring, the tube turning with the key which passes over a helical plane into a space, and the ward-bit of the key engaging with guards fixed in the frame. The key operates to fix the bolt, which is withdrawn when free by turning the knob.

Describes a padlock constructed on the above principle, also a modified form of lock, with three bolts, and a lock bolt with detaining key as applied to a door.

A compound spring latch and bolt. The bolt is tubular and operated by a key; this bolt slides in a case, and the latch which is disposed inside the bolt, is projected by a helical spring, both bolt and latch having independent action.

Describes a door lock which has an arrangement for retiring the bolt when the door is open, and when closed is released by the mechanism.

[Printed, 1*s*. Drawings.]

A.D. 1861, August 27.—N° 2139.

HART, JOHN MATTHIAS, and LAVENDER, ROBERT.—This invention relates to the fixing of handles or knobs on lock and latch spindles.

When two knobs or handles are used, one on each side the door, one may be made fast on one end of the spindle, which is square at the opposite end, and screw threaded at the angles to receive a nut adapted to the recess in the knob, and so arranged that when the spindle is turned by the knob the nut will not turn on the spindle. The turning of the rose plate of the fixed knob is prevented by projections which fit into saw cuts in the door, and at the opposite side there is a supplementary rose plate which is fitted to the door in the same manner, and has on its outer face a projecting socket screw-threaded internally to receive the external or rose proper, which is held to the base of the handle or knob by a screw, ring, or nut, and is screwed to the supplemental rose plate, a spring stud on one engaging with teeth or serrations on the other to prevent unscrewing. By this means the knobs or handles are adjusted on spindles adapted to doors varying in thickness, as also to different kinds of locks and latches.

Other contrivances for compensating irregularities in the fittings, when applying knobs or handles to locks and latches, are also described and illustrated.

[Printed, 8*d*. Drawing.]

A.D. 1861, September 5.—N° 2206.

McCONNEL, ROBERT.—This invention, relating to the construction of locks generally, is designed to give increased security, simplicity, and durability. It consists :—

1st. In the introduction into locks of a contrivance which necessitates the simultaneous lifting of two or more or of all the tumblers, and is a preventive to the ordinary method of opening a lock by lifting the tumblers singly. The tumblers have on their after ends spurs, which are all in a line when the bolt is shot, or are brought into that position at the commencement of unlocking by the action of the key and nearly in contact with a knife edge on one arm of a bell-crank lever, which is centered on a pin, its other arm by means of a spring being kept in contact with projecting edges formed respectively on the upper sides of the tumblers. If all the tumblers are moved simultaneously, as by the true key, their spurs clear the knife edge of the lever, but if one or more are not lifted with the rest, they are caught by the bell-crank lever and stopped, and the bolt in consequence cannot be moved. This contrivance may be modified, a simple modification being described and shown as applied to a latch-and-key lock.

2nd. Is supplementary to former letters patent dated September 25, 1854, No. 2060, and comprises an extension of the means therein described for obtaining increased security, relating *to the action* and mode of actuating the bolt, and to additional racking in the tumblers arranged so that there is just a "slight "outward movement of the bolt; second, a part of the lift of "the tumblers; third, a part of the inward movement of the "bolt; fourth, the remainder of the lift of the tumblers; and "fifth, the remainder of the inward movement of the bolt, . . . "At each change of motion a different adjustment of the "tumblers in relation to each other is rendered requisite, so "that a reduced number of tumblers will give the desired "security."

3rd. Refers to the handle movement of spring latch locks, and

4th. To a simple contrivance for locking a spring latch bolt by a key, to prevent its being opened by the handle.

[Printed, 10*d*. Drawing.]

A.D 1861, September 13.—Nº 2273. (* *)

FARLAR, WILLIAM.—"Improvements in sash fastenings, which "improvements are also applicable to other purposes," namely, to dining tables and to articles "where parts require to be secured "together and tightened at the same time." The invention is described as applied to a window. On the bottom rail of the upper sash is fastened a plate carrying an "ordinary lever catch," at the end of which is "a projection or stud, by preference, of a "**V** or diamond shape," and on the top rail of the lower sash a plate carrying a screw nut, on which an arm travels provided with a recess similar in shape to the stud. To secure the sashes the catch is pulled over the lower sash and beneath the arm; the thumb piece of the screw is then turned until the recess on the arm abuts against the stud. To loose the fastening the screw is turned in the reverse direction until the arm comes against a lug at the end of the screw, when "the point of the arm" rises.

[Printed, 6*d*. Drawing.]

A.D. 1861, October 31.—Nº 2734. (* *)

FANSHAWE, JOHN AMERICUS, and JAQUES, JAMES ARCHIBALD.—(*Provisional protection only.*)—"Improvements in the "means of securing the doors of railway carriages."

The object of this invention is to prevent the doors of railway carriages from being opened while the train is in motion, and yet allow them to be opened when the carriages stop, which object is affected by self-acting machinery placed beneath each carriage

" and set in motion by the running wheels." When a train is in motion the doors of the carriages are secured by bolts, which are pushed forward from some convenient part of the framing into sockets made in such doors; these bolts are connected by means of rods to a vibrating lever or shaft, the latter being itself connected by a lever and rod to the machinery below the carriage. The inventors state that the most convenient mode of operating upon the bolts " is by connecting the locking bolt levers to the " piston of a small cylinder which is kept constantly filled with " oil, water, or air, by means of another and larger pump. This " large pump is worked by means of an excentric on one of the " running axles of the carriage, and as this larger pump will " always keep the small cylinder full, the piston and the latter " will be kept constantly at the end of the cylinder, and consequently will keep the locking bolts pushed forward into their " sockets in the doors, so that these latter cannot be opened so " long as the large pump is kept in action, but immediately " this stops a strong spring, which acts on the vibrating lever or " shaft, will force back the piston in the small cylinder, and " draw back the locking bolts, and thus leave the doors free to " be opened."

" In order to enable the doors to be shut, should any be left " open accidentally when the train has started into motion, the " ends of the bolts may be bevelled off like the spring bolt of " an ordinary door.

[Printed, 4*d*. No Drawings.]

A.D. 1861, November 4.—N° 2770.

WESTON, William Thomas.—This is an invention of a spring or fastening adapted to either closing or opening doors, and applicable to other purposes.

This spring consists of a rod of steel, capable of reaction when subjected to tortional strain. When applied to doors, it is held at one say the upper end, by a bracket fixed to the door frame just below the top hinge, and at the lower end by another bracket fixed to the door just above the bottom hinge. The body of the rod may be round, but the ends are made square or polygonal to fit into holes or sockets of corresponding form attached to or cast on the brackets, and combined with the bottom bracket there is a contrivance for twisting the rod, the tortional reaction of which tends to keep the door closed or to close it when opened. When required to open a door, the rod is twisted in the opposite direction.

[Printed, 6*d*. Drawing.]

A.D. 1861, November 20.—N° 2915.

CROXFORD, Joseph Cooper.—This invention relating to a fastening adapted to doors, drawers, windows, and other purposes, consists of "a segmental or straight bolt . . . . worked by or if " preferred fixed to the handle, on turning which the bolt is " made to protrude and enter a groove, or other similar provision " made in the door jamb; one or more catches or tumblers fall " by this movement, and prevent the return of the bolt; therefore to unlock it is necessary not only to lift the tumblers or " catches, but at the same time to turn the handle. I also make " a keyway in the lock, which turns with the key, so on any " attempt being made to introduce a pick the keyway closes itself, " and leaves but a very small passage to introduce anything " further."

Several modifications and arrangements are described and illustrated, comprising a latch bolt; a desk or box lock; a self locking segmental bolt adapted for doors, and another for window frames; a padlock; a compound lock with segmental bolt; and a lock or compound bolt fastening for a safe.

[Printed, 10*d*. Drawing.]

A.D. 1861, November 26.—N° 2969.

HARCOURT, Robert.—This invention relates to a mode, by means of a divided plate or collar, of fastening knobs to doors, drawers, and the spindles of locks and latches.

The manner of attaching knobs to the spindles of mortise locks is described as follows:—"The ends of the square spindle of the " lock enter the square holes in the necks of the knobs, but are " not fixed thereto, the knobs being secured to the opposite sides " of the door. A ring-like collar, consisting of two semicircular " pieces is fixed on the door, and concentric with the hole through " which the lock spindle passes. These semicircular pieces are " fixed to the door by means of a screw, and turned upon the " said screw in a manner similar to that in which the blades of " a pair of callipers turned upon their joint. In putting the knob " in its place the semicircular pieces are opened, and the knob is " put *on the spindle* and pressed against the door. The semi-

" circular pieces are then closed and fixed by a screw. In closing " the said semicircular pieces the flange on the end of the neck " of the knob is enclosed underneath the collar formed by the " said pieces, and the knob cannot be withdrawn from the spindle. " In order to remove the knob it is only necessary to remove the " screw which fixes the halves of the collar upon the flange of " the knob, when the said halves can open outwards upon the " other screw when they no longer engage with the flange on " the neck of the knob. The arrangement described is employed " on both sides of the door.

Describes the application of the invention to rim locks and to the fixing of knobs to doors and other articles by means of the divided collar.

[Printed, 10*d*. Drawings.]

A.D. 1861, December 17.—N° 3159.

TUCKER, WALTER HENRY.—This invention relating to the construction of locks, is described under seventeen heads; no drawings accompany the Specification. It consists in :—

1st. So arranging the mechanism of locks, that false keys or instruments may be turned in them without strain or injury, nor are they damaged by putting back pressure on the bolt.

2nd. Applying to locks "springs or weights so disposed as to " bring the traversing and the opposing security parts of locks " into contact with each other, and in so arranging and forming " the piece or pieces through which the said springs or weights " produce such contact of the security parts, that unless they are " correctly adjusted by the key the pressure of the said springs " or weights will so move some piece in the lock as to divert " such pressure from the security parts and convey it to some " other point in the lock."

3rd. Giving to such padlocks as lock at the tail end of the shackle, additional resisting power, especially to the locks described in a former patented invention, dated, May 21, 1855, No. 1127, in which locks, a revolving curtain attached to a barrel has been made to serve the purpose of a bolt.

4th. Adapting to all kinds of locks and latches rotating discs carrying the gating stumps, such discs when necessary being made to serve as, or to carry the bolt.

5th. Constructing locks in such "manner that no key or other " *instrument* can remain in communication with their combina- " *tion security parts*."

6th. The so constructing permutation locks that efficiency and security are obtained from a lesser number of parts. Parsons' patent, dated December 3, 1833, No. 6516, is here referred to.

7th. Dispensing with the use of the cramp plate and second key employed in permutation locks, and producing the requisite retaining pressure upon the secondary security parts by a movable self-acting piece, made and arranged to press upon the parts when the bolt is shot out, and to release them when the bolt is withdrawn.

8th. Increasing the range of permutation keys.

9th. So constructing locks, that false keys cannot be made to them by smoking or mapping the security parts.

10th. Increasing, by the use of two sets of combination security parts, the security of slide locks.

11th. Preventing the picking by quills, cane, or such like means of such locks as have their security parts arranged by the action of notches on the key.

12th. So modifying the construction of a combination lock latch "that it shall not be possible to pick it by the pressure or "tentative method."

13th. Forming or coating parts of locks with india-rubber or other compressible substance, in order that they may bind together if pressure is applied to the bolt.

14th. So constructing locks that no internal space is left available for the admission of gunpowder.

15th. Fixing or disposing, and moving the keyhole escutcheons, with a view to the exclusion of dust.

16th. Fixing in a manner capable of adjustment knobs and handles to the spindles of locks. Refers to Duce's patent, A.D. 1842, No. 9364.

17th. Relates to self-locking spring locks.

[Printed, 1*s*. No Drawings.]

1862.

A.D. 1862, January 20.—N° 140.

MAPPIN, Walter Sandell.—This invention relates to the construction of locks made with rotating mechanism.

To the face plate or casing of the lock is fixed a short cylinder containing another cylinder, which is capable of being rotated by the key when it is inserted therein and turned. Both cylinders are pierced with a number of holes, the holes in one cylinder coinciding radially with the holes in the other. A corresponding number of short radial action bolts in pairs are fitted to fill the holes in each cylinder; the bolts of each pair relatively vary in length, those in the large cylinder, one of each pair, being constantly convergently pressed towards the center by springs, so that when the holes in the two cylinders are relatively coineident and the key is withdrawn, the ends of the bolts in the outer cylinder pressed upon by the springs, enter the holes in the inner cylinder, press its companion bolts towards the center, and so prevent its rotative motion, which is necessary to effect the shooting or withdrawal of the bolt of the lock. The shank of the key is furnished with projections so shaped in relation to the varying length of the small bolts in the inner cylinder, that when inserted therein it causes them to diverge, pressing back the bolts in the outer cylinder against the springs, and bringing the points of contact between the contiguous ends of all the pairs of bolts exactly coincident with the circumferential line which divides the two cylinders, so that the inner cylinder is then free to rotate, and carry round its bolts, their ends sliding against the inside of the outer cylinder, whilst the inner ends of the bolts of the outer cylinder, press and slide on the surface of the inner cylinder.

Various modifications are described and illustrated.

[Printed, 10d. Drawings.]

A.D. 1862, January 25.—N° 200.

LEFORT, FRANÇOIS JOSEPH LALMAND.—"This invention
" consists in adapting the well-known letter lock, or two or more
" of such locks to the side of a safe, for example, said locks are
" intended by notched wheels to hold certain rods or levers im-
" movable when the safe is locked, and also by means thereof
" and by an invisible sliding panel connected therewith, to cover
" the keyhole of the lock of the safe, so that unless a person
" knows how to set the letter lock to open same, he cannot un-
" cover the keyhole of the lock of the safe. To render the
" uncovering more difficult, it is proposed for the action of the
" *letter lock* to release an ornament attached to the safe, for

" example, one of a series of " dentals," such as are used in " architecture, that particular one being known to the proprietor " of the safe, he pushes it on one side and by so doing enables " the sliding panel which covers the keyhole of the lock of the " safe to be moved, and thereby uncover the said keyhole; a " reverse movement of the several parts places them in their " original locked position."

The above combination of mechanism may be differently arranged to suit the article to which it is intended to be applied.

[Printed, 8*d*. Drawing.]

A.D. 1862, February 1.—N° 280.

RIESBECK, FRANCIS, and **BECKER**, WILLIAM.—The object of this invention is the construction of a fastening for carpet bags which, by its use, are capable of being opened by one hand, two hands being required to open a carpet bag fitted with a fastening of the ordinary kind.

" For this purpose it is simply necessary to apply the hook or " staple part of the catch on the inner frame, and actuate it by a " spring also fitted on that frame so as to induce a tendency to " keep it always in the locked position, from which it is driven " by the pressure on the thumb knob or lever as well understood " in releasing spring catches. This pressure may either be pro- " duced by the opposing pressure of the finger and thumb applied " laterally or by simple pressure in any suitable manner. The " main part of the fastening may be furnished with lock and key " to produce additional security as usual. The lock or fastening " we apply entirely outside the frame, consequently it is not " necessary to cut away a part thereof as usual. The outside " plates of the lock we prefer to form so as to produce uniformity " of appearance in each part of the metal frame of the bag or " other article."

[Printed, 6*d*. Drawing.]

A.D. 1862, February 14.—N° 398. (* *)

CLARK, WILLIAM. — (*A communication from Felix Hilaire Galliniard.*)—(*Provisional protection only.*)—" Improvements in " mounting and fixing the handles or knobs of doors, furniture, " and other articles." These knobs " are generally formed of " three parts," 1, " the knob of fusible silicious material; 2, " the

" mounting or part on which the knob is adjusted;" 3, " the " spindle forming the base of the handle." The invention consists " in securing the spindle in a recess formed in the interior of " such knob, the pin for fastening the knob being carried by the " mounting, which arrangement affords greater strength and " prevents the mounting becoming loose." A cavity is formed in the knob for receiving the end of the spindle, which cavity is furnished with a metal socket " to prevent the glass breaking by " any slight movement of the spindle."

[Printed, 4*d*. No Drawings.]

A.D. 1862, March 15.—N° 723.

HAMILTON, George.—The object of this invention, relating to the manufacture of tumbler locks, is the so constructing them that the position of the tumblers may not be discovered by applying pressure to the bolt. For this purpose the tumblers are mounted on a center consisting of an eccentric, capable of rotation on a pin or axis fixed to the case of the lock. When the tumblers are correctly set by the key before the bolt is shot back, the eccentric will have no tendency to turn on its axis, but if the bolt is pressed back before the correct adjustment of the tumblers, the eccentric will turn, and the stump on the bolt by pressing against the tumblers will cause them to recede. When the eccentric turns it brings into action a catch to stop the bolt, which catch, if the bolt is further pressed back, will so act on the eccentric as to cause it by its additional action to move the tumblers away from the stump, which then can no longer press against them. " These " movements may be effected in various ways," and the tumblers can be brought to resume their true position by the key, which first acts to press the bolt forward to its correct position, and the tumblers being pressed on by their springs, will cause the eccentric on which they are mounted to turn back and thereby correct the adjustment of the tumblers, and the key will then have power to shoot back the bolt.

[Printed, 8*d*. Drawing.]

A.D. 1862, March 27.—N° 844.

GREENWAY, William.—This invention, relating to bolts and fastenings, refers to the construction of that description of bolt h slides in a tube or barrel, and consists in forming the case, consisting of the barrel and plate, out of a single piece of sheet metal, and the bolt and handle out of one piece of rod iron. The case is made by bending the plate so as to form a ridge along the center and then the two sides are flattened down to a uniform plane or level, the ridge by means of a suitable mandril and the use of dies, being worked into a cylindrical form to receive the bolt, and an opening made for the knob or handle to protrude. The bolt is made out of a length of round rod, having one end bent or turned up, and shaped to form the handle and knob.

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1862, April 8.—Nº 994.

WHITEHOUSE, JOHN.—This invention relates to the manufacture of metallic door and other knobs, to attaching metallic mounts and rose plates to china knobs, and to making ornamental knobs for the pillars of bedsteads and similar articles.

The neck and body of metallic door knobs are made in separate parts, united afterwards by pressure or by any of the processes usually practised. The process is described by the inventor as follows :—"I make the neck of the knob from sheet metal by first
" raising a disk of brass or other metal into a cup-like form by
" means of dies and pressure. I place in the bottom of the cup
" a socket having either a square hole in it or a cylindrical hole
" with a concave screw according as the knob is to be used with
" a square spindle or a cylindrical screwed spindle. By means of
" the turning process called spinning I force the metal into close
" contact with the socket, and secure the said socket in its place
" and give the required shape to the neck at the same time. The
" position of the socket may be more effectually secured by means
" of soldering. In small knobs I dispense with the socket and
" fix the screw or axis in the neck made by spinning, by means
" of zinc, or other easily fused metal or alloy which is melted and
" poured into the neck after the end of the screw or axis has been
" inserted therein. Or a square or screw socket may be cast in
" the neck by means of zinc or other easily fused metal or
" alloy."

Ornaments for bedsteads are made in two or more parts, according to the required shape by stamping, or by pressing and spinning, the annular edge of one part being afterward inserted in an *annular groove* formed in the other part. Metallic mounts are attached to china knobs and ornaments by pouring metal in a fused state into the hollow neck of the knob or ornament, which metal when cold and solidified, fixes the mount in its place.

[Printed, 1*s.* 2*d.* Drawings.]

A.D. 1862, April 12.—N° 1057.

SWEET, Andrew.—(*Provisional protection only.*)—This invention, relating to the construction of locks, consists:—

1st. In the use in tumbler or lever locks of a toothed pinion, to engage in teeth formed on the tumblers for the purpose of preventing the raising of the tumblers separately, so that they may clear the stump or pin when pressure is applied to the bolt in the act of picking the lock.

2nd. The use of a cylinder fitted to revolve on the key or drill pin, and formed to receive the key; this cylinder has a flat side which, when presented to the tumblers, permits of the bolt being drawn back by a handle from the inside without the use of a key, but which is turned from the tumblers if attempts be made to pick the lock from the outside. The drum is partially revolved when the key is applied, and a shield or guard is fitted to the lock to prevent the introduction of picks.

3rd. The use of a toothed pinion which engages with a series of tumblers furnished with teeth, in locks capable of having the bolt drawn by a handle. A stump on a lever enters notches in the tumblers when all are brought into coincidence by the key, and a projection on the lever, which prevents the withdrawal of the principal bolt, is then withdrawn. The arrangement is applicable to all lever locks.

4th. A permutation key, the bits of which are all of one length, and capable of being set at different angles, so as to obtain the different lifts required.

[Printed, 4*d.* No Drawings.]

A.D. 1862, April 19.—N° 1145.

LOYSEL, Edward.—This invention, relating to the construction of locks and fastenings, is supplementary to a prior invention, the Letters Patent for which bear date July 17, 1860, No 1731. The false notches or holes in the cylinders named in the former patent are now dispensed with, and instead thereof, sets of pins are adapted to the cylinders corresponding with holes made in two circular plates, one of which may be rotated, and the other remain stationary until the spindle is drawn back.

In the "former invention, the pins on the spindle plate were " of different lengths, depending upon the position of the cylin- " ders, but in the improved lock all the pins of all the cylinders " are made with their outer ends on exactly the same level, so " that their position in reference to the holes in the circular plates " cannot be felt or known until all the pins of all the cylinders " are brought into the proper position for unlocking the bolt. " The rotating plate in which the holes are made is actuated by " means of a pin fixed in either of the cylinders, and this plate " is placed between the flush pins and the holes, so that until " the holes in both plates are brought into coincidence, the pins " cannot be inserted."

Describes and illustrates a lock adapted to safes, and also a bag lock constructed according to the present invention.

[Printed, 8*d*. Drawing.]

A.D. 1862, May 2.—N° 1298.

ASHWELL, CHARLES.—(*Provisional protection only.*)—This is an invention of a safety fastening applicable to door locks. In the mid-length " of a piece of wood or other material, a slot is " formed about one inch in length, in which is fitted a sliding " hook, the lower end of which protrudes through said slot, and " is fitted with a thumbscrew, another hook is screwed into the " solid part of the wood near to one end of the aforesaid slot, " the bows of said hooks being placed in opposite directions " thus Ɔ C; on one and the same side of the piece of wood a " hole is formed crosswise through each end of the aforesaid " piece of wood, in which is a ring, each ring having a long cord " fastened thereto. To use this improved safety fastening, the " moveable hook is slackened, and the points of the two hooks " passed through the bow of the key in the lock of the door, the " key being inserted in that side of the lock which is in the " room, and suppose it to be a bedroom, the occupant on retiring " to rest, having first locked the door, he then inserts the hooks " of the fastening in the bow of the key, and pushing the sliding " hook outwards to its full extent screws it tightly in that posi- " tion, and proceeds to place the strings aforesaid behind the " pillow of his bed, or in any other place within reach of the " person when in bed; by pulling one string the key will be

" turned partly round and the door unlocked, and by pulling " the other string the door may be locked."

[Printed, 4*d*. No Drawings.]

A.D. 1862, May 5.—N° 1328.

ALLMAN, Herbert.—This invention relates to the construc- of locks adapted to safes, boxes, chambers, and to padlocks, and particularly refers to the bolt, the key, what is termed a "fence " piece," and pliant or movable strut pieces, which are capable of being bent, sprung, or regulated by the action of the key. Firmly fixed in the square head of the bolt are six strut pieces of tempered steel wire. In the fenced piece which is fixed to the lock frame are drilled six holes, and V nicks into which the fence pieces fall are cut in the key.

The peculiar safety of the lock depends upon the strut pieces having their free ends capable of moving in any direction if operated upon by a pick, and the difficulty there is in arranging them to enter the holes in the fence. The key is made before the fence plate is drilled, and is placed in the lock to arrange the struts for making their own center marks when pressed against the fence plate, the surface of which is prepared to retain the marks where the holes for the struts require to be drilled. The invention is applicable to all kinds of locks.

[Printed, 10*d*. Drawings.]

A.D. 1862, May 17.—N° 1504.

TESSIER, Charles Hippolyte. — (*A communication from Baptiste L'Hermitte.*)—(*Provisional protection only.*)—This invention, relating to the construction of a " safety lock," consists in the application of two series of small blades, one series in the lock, and the other on the key, each blade in both series differing from the others in shape and dimensions. The true position of the two series of blades can only be ascertained when they respectively meet, and no trace is left when they separate. "The result " is obtained by adjusting the projecting part of each blade of " one series to the receding part of the corresponding blade of " the other series. On the key being turned round in the lock, " the blades will, at a certain point, strike upon a rest which " props up the blades and gives them that rigidity without which " *they could* produce no effect upon the blades of the lock."

The bolt "is cylindrical, and furnished at its extremity by two "radial projections. After entering the staple through an opening exactly corresponding to these projections, the bolt turns "round so as to put the projections at right angles with the corresponding apertures, thereby making it utterly impossible to "drive the bolt back by any other means but the use of the proper "key."

[Printed, 4*d*. No Drawings.]

A.D. 1862, June 17.—N° 1791.

PRINGLE, Archibald.—(*Provisional protection only.*)—This invention, relating to the construction of locks, consists (as described) "of six bolt checks, each check being complete in "itself by having its own self-acting spring, and if all the "checks were brought into their proper position they could not "be retained so as to let the bolt pass with any instrument or "instruments but its own key, a shield passing before the checks "cutting off all communication with the keyhole, thereby making "it impossible to pick, and in case of a key being lost or stolen "the checks can have their position changed, thereby making "the lost key useless."

[Printed, 4*d*. No Drawings.]

A.D. 1862, June 25.—N° 1864.

TOLHAUSEN, Frederick. — (*A communication from Jean Georges Kast and Adolphe Dobler.*)—(*Provisional protection only.*)—This is an invention of a locking apparatus designed for securing the lids of boxes, trunks, and other like articles. It "consists of "a bolt or bar, which is lodged horizontally either in the lid or "the body part of the trunk or box, and is acted upon by coiled "springs so as to shoot forth and enter one or more eyes or "hooks attached to either part of the trunk when these two "parts are brought home together. Said closing bolt may be "constructed in various ways, it may have several hooks which "are intended to enter the eyes on the other part of the trunk. "The closing bolt, whatever may be its shape, is entirely contained in the trunk, and the aperture by which access is had to "it is covered with a button or any other ornamental device. "For the purpose of unlocking, the bolt is either screwed, tapped, "or otherwise shaped at one of its ends, so as to allow inserting

" a special tapped, screwed, or other key by which the bolt is
" drawn or shifted, and the eyes or staples released, when an
" obstructing piece, acted on by a spring, rises to keep the bolt
" out and ready to act on closing the lid again."

[Printed, 4*d*. No Drawings.]

A.D. 1862, July 8.—N° 1969.

WETHERED, Henry.—This invention, relating to the "con-" struction of handles, latches, or fastenings for doors, gates, or " windows," consists principally in the use of a lever handle, on the spindle of which is a short arm or tongue which, when the handle is raised to a horizontal position, may be inserted in an opening in a catch plate fixed to the jamb or door post; the handle must then, in order to fasten the tongue in the catch plate, be depressed, or allowed to gravitate downwards.

The same principle of construction in a modified form, is employed for window fastenings, and in all cases a spring fastening or lock requiring a key may be combined with the apparatus.

When applied to the doors of rooms and carriages, a lever handle to operate the spindle and tongue on each side of the door is required.

[Printed, 10*d*. Drawing.]

A.D. 1862, August 20.—N° 2332.

WILKES, Samuel.—The object of this invention is to simplify the attachment of door knobs or handles to their spindles, in a manner to suit doors of different thicknesses.

The angles of the square spindle are screw threaded, and the neck of the removable knob is tapped to receive it. On the neck end of the knob are two projecting nibs, one on each of the two opposite sides of the hole; these nibs are for the purpose of receiving a locking plate, which is radially slotted to embrace the nibs on the knob and the spindle between them, when the plate is slid in between the end of the knob and the door. By this means the knob and the spindle are locked together. The edges of the lock plate may be hidden by the rose. This mode of fixing " is applicable, not only to metal, but also to wooden, earthen-" ware, and other knobs, a metal tube being introduced, if " thought desirable, into the neck of such knobs to carry the " *projections*. Instead of forming projections on the neck of the

" loose or removeable handle, a recess may be formed in the " neck to receive a projection on the locking plate, and the same " result will be obtained."

[Printed, 6*d.* Drawing.]

A.D. 1862, August 28.—N° 2392. (* *)

COOKE, Grattan.—(*Provisional protection only.*)—" An im" proved apparatus for securing or fastening doors to prevent " robbery or intrusion."

The apparatus has the form of a walking stick, a handle being formed with a crescent, or "crutch-head," for the purpose of placing it beneath the handle of the door, the key, or the lock; the crutch head is a separate piece inserted into a hole in the upper end of the stick, and may be moved upward and downward. It is kept in its place by a pin through the upper end of the stick and any corresponding holes in the stem of the " crutch-head."

This apparatus may be used as a walking stick, but when required for continual use may be wholly made of iron.

[Printed, 4*d.* No Drawings.]

A.D. 1862, October 6.—N° 2695.

LOWE, Daniel.—This invention relates to the construction of door bolts and latches. The mode adopted for making the barrels and the plates of bolts and latches out of one piece is described as follows :—

" I take a piece of sheet iron of the length of the plates, and by " dies and stamps or presses I raise along the middle of the " sheet an arch, which constitutes the barrel in which the bolt " slides. Portions of the said arch are at intervals bent in oppo" site directions, and constitute bands which hold the bolt in " the arch or barrel. A narrow band at the end of the barrel is " less depressed than the others, and constitutes the stop of the " bolt; or in place of a continuous barrel I employ one, two, or " more separate arched bands in which the bolt slides, and I fix " the said arched band or bands to the plate by turning the edges " of the plate over the ends of the said arched band or bands."

" I make the plates of the latches by dies and stamps or " presses in a way similar to that by which I make the barrels " and plates of bolts, that is, I cut and raise from a sheet of iron " the strap or guard under which the lever or latch works, and

" also perforate the plate for the axis of the latch; or I make
" the said strap or guard from a separate piece of sheet iron, and
" fix it to the plate by turning its ends over the edges of the
" plate. When the latch turns upon a center in the plate I make
" a projecting hollow axis on the end of the latch by means of a
" press or stamp and cause the latch to be held down by means
" of a coiled spring. When the latch turns upon a center in the
" strap or guard, I cause the latch to be held down by means of
" a spring coiled around its axis."

[Printed, 1*s*. Drawings.]

A.D. 1862, October 13.—N° 2750.

CHATWOOD, SAMUEL.—This invention relates to the use of plates composed of iron and steel in the construction of fire and thief proof metallic safes and depositories, and to locks or fasteners,—

1st. The plates employed in the construction of safes are laminated, consisting of a steel plate combined with and between two plates of iron; these "iron-steel" plates are bent to the required form for the sides, and the edges which meet are welded together. The back or bottom is made of the same kind of material, and is fixed to the sides by welding, dovetailing, or by angle iron. The bands are in one length bent to form, and welded together at the ends, and the lock chamber is cast of iron or steel and attached by rivetting.

2nd. Relates to the lining safes and strong rooms with wood charged or saturated with chemical substance; and to making the internal fittings of the same material.

3rd. Case-hardening the combined steel-iron when manufactured into safes, to make it impervious to drilling or cutting tools, and enamelling parts of safes and such-like depositories, or the locks thereof, with vitreous or ceramic materials. Refers to former Letters Patent dated May 28, 1860, No. 1308.

4th. Filling up the cavities of the lock chamber with absorbent compressible material, saturated with glycerine or other substance in order to prevent the introduction of gunpowder, or to render it inexplosive.

5th. The outer portion of the case of the small lock may be of any desirable shape, but the inner portion which forms part of the *keyhole must* be concentric with the centre of motion. The bolt is so contrived and connected, that whenever pressure is applied excepting by the true key, the main stump recedes from the face of the levers and leaves them free. The key-bit when shooting the bolt acts upon a small stump or pin, the bolt when the key returns being thrown back by a spring. Instead of ordinary levers, circular or segments of discs are used, the key hole being made in their periphery, and the parts are made so to inclose the drill pin, that all available space for the introduction of explosive substances shall as much as possible be curtailed or filled up. The component parts of the lock are made of electro-positive and electro-negative metals," and sometimes glass or other vitreous or ceramic substances are used for the purpose of resisting the action of nitric or other acids.

[Printed, 1*s*. Drawing.]

A.D. 1862, October 16.—N° 2791.

BERRY, GEORGE.—(*Provisional protection only*.)—This invention relates to those locks which have sliding guards passing through notches in a locking plate, and consists in,—

1st. "Cutting notches in the sliding guards at right angles to " the notches which have to pass the locking plate; I then place " an immoveable mask or partition in each of the first-named " notches, and these masks or partitions consist of rings placed " in a barrel, or a plain plate placed in a box, when the motion " intended to open the lock is lineal instead of circular. The " result of this arrangement is that the notches in the guards " cannot be got at by any instrument whatever, as they are placed " in a line parallel to the part acted upon by the key, but " separated by masks or partitions."

2nd. "Cutting the sliding guards into two parts, in such a " manner that if force be applied to one part that force will be " communicated to the other, and both will move in the same " direction. The parts through which force and motion are " communicated to the other parts I call media. The result is " that no vibration of those parts which indirectly receive force " and motion is communicated to any pick-lock or instrument " applied to open the lock, whereas in ordinary locks of this " description vibrations occur in the sliding guards, which distinctly convey to an expert attempting to pick the lock the " precise position of the notch where the sliding guard is placed,

" and by repeating this operation upon each guard he will be " enabled to make a key which will open the lock."

[Printed, 4*d*. No Drawings.]

A.D. 1862, October 16.—N° 2796.

HAROLD, THOMAS GEORGE.—(*Provisional protection only.*)—This invention relating to permutation locks, is described as adapted to a padlock.

The case is formed by flanged side plates which are screwed together, the shackle passing through the flanges.

To hold the shackle or bolt are employed " circular tumblers " with flanges turned up or formed around the edges, and the " said flanges should be provided with teeth or decoy notches on " the inner side, and a slot through each flange, so that a shackle " or bolt provided with the proper projections will be retained by " the flanged tumblers, and the said projections taking into " the decoy notches in the flanges of the tumblers to prevent " any person from finding out the position of the slots in the " flanges that pass the projections of the shackle or bolt in " unlocking. These flanged tumblers are placed one inside of " the other, and are connected by solid and pipe-shaped arbors " to dials or pointers on the outside of the lock plates, and by " setting these dials or pointers to the proper positions the slots " in the tumbers will all be in line, so that the shackle or bolt " will pass out. The change of combination is effected by placing " the flanged tumblers in a different position to the dials or " pointers."

[Printed, 4*d*. No Drawings.]

A.D. 1862, October 27.—N° 2889.

PILGRIM, THOMAS.—This invention consists in the addition to ordinary and other locks, and to locks in use, of a supplementary safety bolt, to be actuated by an additional ward bit on the key by means of an intermediate gravitating or spring lever, placed in a separate compartment accessible only to the extra ward bit, the safety bolt and the ordinary bolt being operated simultaneously. When the security of the safety bolt is not required, it may be thrown out of gear with the key by sliding a small knob, disposed at the back of the lock, in one direction, and into gear by imparting to the knob an opposite movement. "The safety bolt

" is self acting by the operation of the gravitating or spring " lever, and in its normal position remains constantly bolted or " shot from the lock, and recovers its normal position con- " stantly the instant the additional limb on the key passes a par- " ticular point of its revolution. In the compartment in which the " safety bolt is placed I fit a drop-locking lever for locking the " safety bolt and ordinary bolt together, so that when both are " locked the latter cannot be moved until this drop lever, which " is inaccessible from the keyhole except by the proper key, is " lifted thereby : hence to pick a common lock of this improved " construction becomes an almost, if not absolute impossibility."

[Printed, 10*d*. Drawing.]

A.D. 1862, December 2.—N° 3239.

BROWNE, BENJAMIN.—(*A communication from Jean Baptiste Poisot.*)—(*Provisional protection only.*)—This invention relates to the knobs and handles of door locks, and to a method of connecting them with and operating the sliding bolts. It is described by the inventor as follows :—

" I employ a knob working on a fixed axis, and fix thereon " a short crank or arm formed with a small pin which fits in a " vertical groove made in the bolt, so that by turning the knob " in a semicircle in said groove the bolt will be moved by said " pin in a straight line either backwards or forwards, either for " drawing back or pushing forward the bolt, and will retain same " firmly in either position, thereby dispensing with the use of a " spring for pushing the bolt out, as heretofore practised, and by " these means keeping the bolt within the lock when the door is " opened, instead of the bolt projecting beyond the edge of the " door as is now the case, and which in practise is found very " objectionable. I employ a spring to press on the edge of the " crank or arm aforesaid for keeping same steady."

[Printed, 4*d*. No Drawings.]

A.D. 1862, December 5.—N° 3261. (* *)

TILDESLEY, MATTHEW, and SHARPE, EDMUND.—(*Provisional protection only.*)—" Improvements in the manufacture of " earthenware knobs, and in fixing them ; in spindles used with " certain kinds of knobs ; in securing the metal mounts upon " such knobs ; and in apparatus to be employed in certain parts "of this manufacture." The knobs are moulded in metal moulds lined with plaster of Paris; "the sinking on the back of the knob for the mount and spindle, or for the screw, as the case may be, is formed by employing a plug of fired earthenware surrounded by plaster of Paris, the plaster being protected at the bottom by the form of the plug which resembles a piston with its rod covered with plaster;" the sinking is by preference made "square in section." The hole for the metal, which is intended to secure the mount or screw in the knob, is pierced by "a peculiar instrument formed similarly to a pair of glove stretchers with a horizontal pin or stud upon the end of each limb; the tool when closed will pass into the sinking for the mount; pressure by the hand then forces the pins or studs laterally into the clay." The knobs, when moulded, sunk, and pierced, are "glazed and fired by the ordinary process." In the knobs intended for drawers or cupboards "a male screw or plain plug, tapped to receive another screw inserted from the back" of the drawer or "door, is substituted for the mount. The knobs and mounts or screws are fastened together by running an alloy of metal into the holes; this alloy consists of about two and a half per cent. by preference of regulus of antimony, about the same proportion of tin, the remainder being lead." The spindles are grooved on all four sides throughout their length "by rolling the iron in suitable rolls to any necessary length, and then cutting up the rod thus produced into lengths for each spindle."

[Printed, 4*d*. No Drawings.]

A.D. 1862, December 15.—Nº 3349.

PHELPS, WILLIAM.—This invention relating to locks generally, is described and illustrated as applied to a mortise lock. It consists in fitting into the keyhole center a small rotating barrel which carries two discs, the two ends of the barrel resting in holes made in the side plates of the lock, and both flush with the outside. One of the discs carries two tangent spurs or teeth relatively parallel with its periphery, and attached to one side of the free end of a lever placed below the barrel, and mounted at its other end on a fixed stud is a triangular block. The lever in its normal position is constantly raised by a spring, and is depressed by the ward-bit of the key, which turns the barrel and the discs, and operates in the usual or ordinary way upon the bolt. "If a false key is introduced into the lock it either

" depresses the lever too much or not enough. If it depresses " the lever too much the said lever is arrested by the stop, and " the key cannot rotate. If it does not depress the lever enough, " the teeth on the projecting block engage with the teeth on the " toothed disk, and prevent the rotation of the disks and key. " The action is the same whether the key is introduced from one " or other side of the lock. When the key is left in the lock in " any other position than that at which it may be drawn out the " keyhole on the other side is closed."

[Printed, 1s. Drawings.]

A.D. 1862, December 20.—N° 3406.

MICHAELIS, James, and RUBINO, Joseph.—(*A communication from Gustav Luttringhaus.*)—(*Provisional protection not allowed.*)—Provisional protection for this invention relating to lock catches for purses, bags, and similar receptacles, was on September 19, 1862, No. 2578, granted to Edward Feis, who, in the interval between the latter and the above date, died.

One of the side frames of a purse or other article is furnished with a fixed hasp or projection, which engages with and is held by a spring catch fixed on the opposite side or frame, which carries a sliding piece that moves in a slot, and is furnished with a knob outside. When the part which carries the knob is moved along the slot, a projecting incline on the sliding piece comes in contact with, and so presses upon the spring catch, as to cause it to release the fixed projection on the other side frame, and thereby leave the two sides at liberty to open. Instead of operating the sliding piece by a knob, it may be moved by a key introduced through a keyhole made in the frame.

[Printed, 4*d*. No Drawings.]

1863.

A.D. 1863, January 9.—N° 73.

TUCKER, Walter Henry.—The object of this invention, -lating to the construction of locks and to fixing or connecting knobs on spindles, consists:—

1st. In preventing the position respectively of the gatings in the levers or tumblers of locks, being ascertained by pressure directed endwise on the bolt, by the use of a movable lifting piece furnished with a pin or stump, and so constructed and disposed in the lock, as to be capable by means of the pin of lifting or so gathering up the levers or tumblers when the piece is brought into action or influenced by pressure on the bolt, that they cannot be acted upon separately by picks or other instruments, for the purpose of ascertaining respectively the position of their gatings.

2nd. Describes three modes of constructing and fixing adjustably knobs on lock and other spindles, so as to suit doors differing in their respective thickness. The spindles are square and screw-threaded at the angles either at one or both ends, the knob on one end being permanently fixed by screws or otherwise. By one method the movable knob is placed on the spindle and fixed to an ornamental rose which, is to cover an adjustable rose that is first screwed on the spindle and fastened to the door, the two roses being screwed together.

The other arrangements are modifications of the above.

[Printed, 8*d*. Drawing.]

A.D. 1863, January 13.—N° 109.

TILDESLEY, MATTHEW.—(*Provisional protection only*).—This invention relates to padlocks, and to other locks and keys, and consists, as described:—

1st. "In casting all the parts of padlocks, except the spring, " instead of making them of sheet or forged metals."

2nd. "In a method of securing the shackle between the back " and front plates to avoid employing the rivet pin; this I effect " by casting a sinking upon either side of the heel of the shackle, " and a corresponding stud or rise upon the front and back plates, " or a hole or a sinking in these plates with a stud or pin upon " the heel of the shackle."

3rd. "In forming a stop upon the cheek through which the " bolt strikes, and against which stop the spoon of the shackle " rests."

4th. "In such locks as usually employ a drill pin I form the " key with a pointed end fitting a corresponding cup cast in " the lock, around which cup is a circular ward to receive the " key."

[Printed, 4*d*. No Drawings.]

A.D. 1863, January 15.—N° 131.

BARRACLOUGH, Thomas Critchley.—(*A communication from George Henry Sanborn.*)—This is an invention of an alarum combined with a lock or a latch and so arranged, that by the movement of the key, knob, or handle, when opening doors, drawers, tills, and places whereto it is adapted, it shall give an audible signal by means of a bell, which is struck by a hammer operated by the mechanism.

This alarm apparatus is all disposed in the lock case, and is so arranged that the part which raises the hammer may be thrown out of gear with the piece that actuates it, by altering the position of a stud projecting radially from a short tube, which is mounted to turn freely on a fixed pivot, and is maintained in position by a spring.

[Printed, 8*d.* Drawings.]

A.D. 1863, January 21.—N° 184.

BOUBÉE, Adolphe.—This invention relates to moulding and casting articles in glass, and refers to :—

1st. The manufacture of lamp or lantern globes, watch glasses and similar articles, the moulds for which are made in three or more perforated parts united by hinges; these sections of moulds when closed form a kind of perforated shell, the holes through it being closely and regularly arranged, so that when the glass is distended by blowing inside the mould, it protrudes through the holes, and thereby is formed upon the globe or article a number of hemispherical projections.

2nd. Relates to the manufacture in glass, of knobs and handles for doors and other purposes, studs, buttons, etc. The moulds for this purpose are in two parts, respectively contrived by suitable appliances to open and close with pressure; the internal concavity in a door knob or other article being produced by thrusting into the molten glass, whilst in the mould the suitably formed end of a metal rod.

3rd. Relates to the use of hinged moulds designed for producing articles of varied form, the glass whilst in a molten state within them being subjected to pressure.

[Printed, 8*d.* Drawing.]

A.D. 1863, January 26.—N° 228.

SMITH, Andrew.—(*Provisional protection only.*)—"*This in-*" *vention relates to* the introduction of a wheel or roller in the

" keeper of spring locks or latches and other similar fastenings " for doors, lids, drawers, and the like, so that when the same " are being shut the end of the spring bolt comes in contact " with the said wheel or roller on the style or bar of the keeper, " which wheel or roller then revolving freely, causes the bolt to " recede into the case of the lock and then spring forward into " its place in the keeper more easily, pleasantly and certainly than " with the ordinary keeper bar, operating by friction only upon " the spring bolt."

"In one form of . . . . the semi or half diameter of the wheel " is scarcely so much as the length of that part of the bolt which " projects beyond the case of the lock, so that when the door or " lid is closed and the bolt springs into its place in the keeper, the " wheel has no inclination to revolve and release the bolt or latch " until it is drawn back by hand."

According to another plan a wheel or roller is fitted to or in the end of the bolt.

[Printed, 4*d*. No Drawings.]

A.D. 1863, February 4.—N° 318.

WESTON, William Thomas.—This is an invention of a spring catch or fastening, applicable to windows and a variety of other purposes.

This fastening consists of a box plate of ordinary construction, containing a loose flat curvilinear steel spring extending nearly from end to end, and also a lever longitudinally channelled to contain a flat spring "which is fastened to the fulcrum end of " the lever by means of a small vertical pin or stud passing " through an aperture cut in the spring, and also by means of a " cross pin passing through each side of the lever and underneath " the flat spring close to the fulcrum end, to bear pressure and " create elasticity or increased power in the spring. The spring " is furnished on its upper surface, and near the opposite end of " the lever, with a wedge or angular shaped stud or tooth, which " stud or tooth passes or projects through an aperture cut in the " top of the lever, and forms a catch or stop, which takes into a " series of corresponding cavities or racks formed either underneath or at the side or sides of a segmental plate above the " said lever, one end of which is secured on to the ordinary lower " *plate containing* the screw holes for the attachment to the " *window* or other object to which the fastening is to be applied;

" or the rack may be formed upon the lower plate itself, in " which case the spring catch within the lever would have to be " reversed."

In some cases a spiral spring is substituted for the flat spring in the hollow of the lever, and the other parts of the catch are modified. The catch is unlocked by pressing upon a stud fixed on the lever end.

[Printed, 6*d*. Drawing.]

A.D. 1863, February 7.—N° 347.

PARIGOT, Claude, and GRIVEL, Antoine.—This invention relates to a keyless or permutation lock, wherein the throw of the bolt is effected by means of eccentrics. The advantages of such locks are as stated: 1st, dispensing with the use of a key; 2nd, dispensing with all springs; 3rd, the combinations which by increasing the number of parts render the lock unpickable; 4th, the lock is hermetically sealed and thereby kept free from dust, is made cheaply, and is durable. The permutations are made by means of a number of concentric tubes or sockets placed on a spindle one within another, each having a pointer for the purpose of adjusting its position in relation to the marked divisions of a dial plate. Upon the end of the spindle there is fixed a knob that covers the ends of the sockets, each of which is connected with one or other of a series of rings inside the lock, the spindle when turned by the knob, acting upon the bolt to press it back or shoot it by means of an eccentric, disposed on the end of the spindle between two rollers, which are free to revolve on studs fixed projectingly in the bolt, that is only capable or at liberty to move, when certain spaces in the rings are brought relatively coincident by the pointers on the dial.

A modification wherein the tubes or sockets are capable of turning without acting on the rings when the lock is open, the connection being made by springs, is described.

A box lock and a padlock constructed on the same principle are also shown.

[Printed, 1*s*. Drawings.]

A.D. 1863, February 14.—N° 409.

FRASER, Alexander John.—(*Provisional protection only.*)—This invention relates to sash fastenings for such windows as are usually counterbalanced by weights. Inside the window frame are fixed two ratchet racks, one for each sash the lengths respectively corresponding therewith, and the square part of each ratchet tooth being upwards. On each window sash, fixed in a suitable position is placed a spring clack or pawl to engage with the ratchet teeth and support the sash at any height to which it may be raised. When required to lower either of the sashes, the clack is taken out of gear with the rack, and when the sashes are closed, they are made fast by means of a spring bolt, one to each sash, entering a corresponding hole in each rack. Instead of mounting the spring clacks on the sashes and the racks on the side frames, their positions may be reversed.

[Printed, 4*d*. No Drawings.]

A.D. 1863, February 14.—N° 413.

JOHNSON, JOHN HENRY.—(*A communication from Louis Pierre Vincent, Etienne Eugine Jacquemin, Jean Charles Douriez, and Gustav Joseph Legros.*)—This invention relates to the construction of wrought-iron casements and glass door frames which are kept “closed by an ‘espagnolette,’ or french casement fastening, the rod of which is fitted to the sash frame by means of two hinges let into the frame. It is provided at the top and bottom with a hook, which hooks when closed engage into corresponding notches in pieces attached to the opposite sash. Through the centre of the rod is passed the spindle or axis of the handle, on the end of which is fitted a latch, which when the handle is in a vertical position presses upon the vertical bar of the opposite sash, and thereby causes the two sashes to bear throughout their entire length against the sash frames. When the window is to be maintained partly open, and in order that the sashes may not be shaken by the wind, a portion of the handle of the ‘espagnolette’ is engaged into a hook hinged to the opposite sash bar, which hook is turned outwards to receive it, but on closing the window the hook or catch is turned inwards into a recess in the sash, and is concealed from view when the sash is closed.”

[Printed, 10*d*. Drawing.]

A.D. 1863, February 16.—N° 417.

MCENTEE, WILLIAM CHARLES, WITHERS, GEORGE, and WITHERS, THOMAS.—This invention, relating to the construction of lever and other locks, consists in :—

1st. So arranging the parts of a lock that all the internal space *when the bolt is* shot, shall (excepting the keyhole) be filled up by a movable block, thereby to prevent the introduction of gunpowder.

2nd. Upon the upper edge of each lever of a lock is a projecting stud, and upon the periphery of the rotating curtain plate there is a tooth, which in the action of the lock must escape all the studs on the levers before the bolt can be shot or withdrawn.

3rd. In front of each ordinary lever of a lock is placed a supplementary or detector lever, making a corresponding set moving on a center below them. These detector levers have hooked ends, which bear upon the top edges of the ordinary levers when the bolt is shot. These last-named levers cannot be raised or the bolt withdrawn until, by the turning of the curtain, the tooth thereon has by means of an intermediate arm freed the ordinary levers from the hooked ends of the detectors.

4th. The key is, for the purpose of withdrawing the bolt, made to act upon a projecting part of one of the levers, the part of the bolt usually acted upon by the key being cut away. The spring for depressing the levers is carried by the bolt, and the levers turn up and also move with it, the stump being fixed on the lock case. The end of each lever is serrated, and in the stump there is a recess, with which one or other of the serrations on the levers engage when attempts are made to pick the lock with false keys.

[Printed, 1*s*. 6*d*. Drawings.]

A.D. 1863, March 26.—N° 790.

PARNELL, Michael Leopold.—The object of this invention relating to the construction of locks, is first to prevent the stump of the bolt of a lock being pressed back against the cheeks of the levers; this is effected by mounting the levers upon a pin fixed in the end of a cranked arm, which centers on a pivot fixed to the lock case at the tail end of the bolt which is recessed, so that pressure applied to the head of the bolt, causes the arm to rise and enter the recess, and thereby prevent the pressing of the stump against the cheeks of the levers. Second, false keys or picks are detained by means of a detector, formed by a curtain with a barrel and collar revolving in the cap plate of the lock; it is turned by the key in locking and unlocking, and acts in combination with a lever and sliding plate. The contrivance required for releasing false keys or instruments is also described.

Knobs are adjustably fixed on lock or other spindles, in a manner to suit doors differing in thickness. The knob on one end of the square spindle is made fast by a screw; the other end of the spindle is screw-threaded at the angles, and the knob is tapped and screwed on nearly up to the face of the door, only leaving room for a rose plate or collar, which is furnished with projecting studs that enter holes in the knob end, and prevent its turning on the spindle; for the purpose of placing the collar on the spindle, the latter is withdrawn from the lock, the knob on the other end of the spindle being temporarily removed.

[Printed, 8*d*. Drawing.]

A.D. 1863, April 14.—N° 934.

BERRY, GEORGE.—(*Provisional protection only.*)—This invention relates to that description of lock wherein a number of sliding guards are caused to move in grooves by the action of the key and pass through notches in a notched locking plate, there being in such locks no impediment to the insertion into the grooves of picklocks or instruments for the purpose of discovering the position respectively of the notches in the guards. The object of the invention is to prevent this by cutting the notches in the sliding guards and in the locking plate relatively at right angles, and then fix a mask or partition in each of the first named notches. "These masks or partitions consist of rings placed in " a barrel, or a plain plate placed in a box, when the motion " intended to open the lock is lineal instead of circular. The " result of this arrangement is that the notches in the guards " cannot be got at by any instrument whatever, as they are " placed in a line parallel to the part acted upon by the key, but " separated by masks or partitions.

Also "cutting the sliding guards into two parts in such a " manner that if force be applied to one part that force will be " communicated to the other, and both will move in the same " direction."

[Printed, 4*d*. No Drawings.]

A.D. 1863, April 15.—N° 951.

MORTON, JOHN SANDERSON.—(*Provisional protection only.*)—This invention relates to locks so constructed that the key acts *indirectly* upon the bolt by means of a revolving plate fitted

inside the keyhole and kept in position to receive the key by a projection formed with a recess on a curved bar, a pin on the plate resting therein. One end of the bar "is free to move on a
" pin or stud while the curved end rests on a segmental recess
" formed in one arm of a bell-crank lever, the other arm of this
" lever is bent, and the end abuts against a tappet fixed on a rod
" held in the sides of the lock plate. This rod carries another
" tappet at right angles, or nearly so to that first named, and is
" pressed against by a spring which rests upon the lock plate.
" The revolving plate carries a projecting arm, and on the key
" being turned it carries the plate with it, and the arm entering a
" notch in the bolt and the motion of the key being continued,
" shoots the bolt, the key in carrying the plate round comes in
" contact with the segmental recess in the bell-crank lever, forces
" it back, and causes the tail to press upon one of the tappets on
" the rod before named; the pressing in of this tappet depresses
" the other tappet and forces down the spring, and this tappet
" pressing at the same time upon one arm of a lever raises the
" opposite arm, which is hooked free from a locking lever, and
" the motion of the key being continued brings the arm on the
" circular plate into a notch on the tail of the locking lever,
" whereby the face of this lever formed with a crutch is forced
" behind and into a recess made in the bolt, and holds it secure
" until the motion of the key in the reverse direction acting
" through the arm on the revolving plate, the bell-crank lever,
" the tappet rod, and hooked lever releases the locking lever,
" whereupon the hooked lever engages into the locking lever
" releases the crutch from the bolt and allows of the bolt being
" drawn back by the arm on the revolving plate entering the
" notch in the bolt. The working parts of the lock are at such
" a distance from the keyhole that they are inaccessible or nearly
" so to any instrument for picking the lock."

[Printed, 4*d*. No Drawings.]

A.D. 1863, April 16.—N° 959.

OLDFIELD, WILLIAM.—This invention relates to locks adapted to dispatch boxes, writing and dressing cases, and to other purposes. The parts and details of these locks are constructed and arranged for being fitted to and carried by the cover, instead of being fitted to the body of a box, the keyhole entrance being formed through the top, so that the box or case may be unlocked and opened without changing its position. The locking plate fixed on the body of the box or case, is formed with one or more hooked shaped projections, which enter the lock when the lid is closed, and engage with projections on the bolt when it is shot forward. "The bolt is extended upwards to the top plate of the " lock in which the keyhole is formed, and slots or openings are " formed in the bolt for the introduction of a spring tumbler or " other locking apparatus. There is also a fixed projection on " the back plate of the lock which passes through a slot in the " bolt to support the key pin. Suitable wards, grooves, inclines, " or projections are formed upon the bolt for the key to act upon. " The form and action of the bolt, together with the arrange" ment of the other parts of the lock, may be greatly varied " according to the purpose for which it is required."

[Printed, 8*d*. Drawing.]

A.D. 1863, May 14.—N° 1219.

PARKER, Isaac.—This invention relates to the fixing of knobs and handles on door lock and other spindles. The knobs are of the ordinary description, and the spindle square and screw-threaded at the angles. The attachment of the knob at one end is made by means of two plates, one, having a central tapped hole, is first screwed on the spindle, and the other with a square hole is slid on; the neck of the knob is held against this latter plate by pins or studs, and when the two plates by pins or studs passing through them are fastened together, the screwed plate cannot turn on the spindle or the knob shift longitudinally. The other knob, placed by preference inside the door, screws on to the spindle; it has a plate fixed to it having a projection, and is held in position by another plate, which is radially slotted to slide transversely on the spindle, the two plates being then fixed or screwed together.

[Printed, 10*d*. Drawing.]

A.D. 1863, May 27.—N° 1333.

GAMMON, Charles.—This invention relates to the construction of a spring fastening adapted to a variety of purposes. It is described as follows :—"On the front end of a spring bolt, such " *as is used in* window sash fastenings, I fix a spindle, and fit on "this spindle a barrel, the outer surface of which is formed with "a catch or projection; this barrel carries a spring, and terminates at top in a button or knob, whereby the barrel and with "it the catch can be partially turned or moved. The remaining "part of the fastening consists of a fixed locking plate, the fore "end of which is curved, and which at the end of the curve has "a notch or nick formed in it. When the spring bolt is drawn "to make the fastening, the end of the curved plate comes in "contact with the projection on the barrel, and causes it to make "a partial turn until the projection reaches the notch, when the "barrel is forced back, and at the same time the catch is engaged "into the notch. To open the fastening turn the catch out of "the notch by means of the button, and push the bolt clear of "the locking plate."

[Printed, 8*d*. Drawing.]

A.D. 1863, June 16.—N° 1509.

FRASER, Alexander John.—This invention relates to fastenings adapted to house and carriage windows, consisting :—

1st. Of a fastening comprising a ratchet rack, which is fitted to the inside of the window frame, and a spring bolt so fitted to the sash frame as to be able to engage with the rack, the teeth of which incline downwards, so that whilst the sash is being raised the bolt rides over the teeth, but each tooth will catch and detain it when descending, the bolt then requiring to be drawn back; for the purpose of fastening, the bolt shoots into a hole made at the proper place in the rack. The positions of the rack and bolt if desired may be reversed.

2nd. A rack fastening, having teeth formed like ordinary round-tooth gearing, engaging with which is, suitably mounted on a spindle, a rotating catch wheel, free to move in one direction, but capable of being controlled in the other direction by a moveable pawl. When required to fix the sash, the pawl is held to the teeth of the wheel by a catch.

[Printed, 1*s*. Drawing.]

A.D. 1863, June 30.—N° 1625.

JENNINGS, Josiah George, and LAVATER, Manuel Leopold Jonas.—This invention relates to apparatus answering as stoppers or covers adapted to closing bottles, jars, and vessels, and in a modified form applicable as a fastener for windows, drawers, and doors. It consists, as adapted to bottles and jars, of a kind of hollow stopper or cover, composed of india-rubber with metal fittings; it is operated upon by air pressure, capable of expansion whereby to close the bottle or vessel, and is fitted with a valve.

It is applied as a fastener to windows and doors, in the form of an india-rubber tube lying in a groove which extends completely round the door or window. Fitted air tight to this tube is a small tubular branch or projection, the end whereof is provided with a valve which opens inwards. The tube is inflated or expanded by blowing air in through the valve, and it then acts as a fastening; when desired in order to release the window or door, the air is allowed to escape from the tube by pressing a suitable instrument against the valve.

[Printed, 10*d*. Drawing.]

A.D. 1863, July 8.—N° 1702.

NEWTON, WILLIAM EDWARD—(*A communication from Randolph Foster.*)—This invention, relating to a variety of contrivances applicable in the construction of locks and fastenings, consists of:—

1st. Locks adapted to banks, vaults and safes, employing keys with permutable pins varying in length. In these locks the slides or bits and other portions constituting the movable parts of the lock, are so combined with and carried by the bolt, in connection with a brace in the lock case, that the pins of the key may retain some of the slides until the bolt is shot, the others moving with the bolt so act relatively, that the bolt cannot be forced into the lock case. The bolt can only be released by the same combination which fastened it.

2nd. Combining, in door and similar locks, the escutcheon and cam worked by the shank of the knob or lever with an interposed series of pins, which have necks and must be properly arranged by the key before the main bolt can be operated; a spring bolt in combination with a cam is operated inside the lock for locking back the main bolt.

3rd. Door locks with double or two bolts and two keys, each capable of independent action, the lock containing only one set of plates upon which both keys operate, each for the purpose of *throwing only* its own bolt.

4th. Mortise-locks with knob and locking bolts combined. In these locks a turning hub with two cam projections, and bit plates of special construction are so combined with two bolts, that the key may be made to control either both or the locking bolt only, the other bolt being operated by the shank of the knob. The key is double bitted.

5th. Description of a combined lock, knob, catch, and night-latch.

6th. Drawer locks, comprising a peculiar arrangement of key, turning hub, bit plates and spring bolt; one revolution of the key and hub arranges the plates, draws in and locks the bolt, re-arranges the plates, and allows the bolt to be shot by its spring.

7th. Trunk and other locks fitted with hasps. These locks are fitted with tumblers which are arranged by a sliding key of the required shape; the hasps when locked lie in recesses so as to be less liable to injury. Other hasp locks have their mechanism so constructed and arranged, that by turning the key in one direction the lock is both locked and unlocked.

8th. Padlocks or mail locks. These locks have the same principle of construction as the hasp locks. A three quarter turn of the key, which is very light and convenient to carry, arranges the bit plates so that the hasp is free to move in and out, and it is locked by the remaining quarter turn in the same direction.

[Printed, 2*s.* 4*d.* Drawings.]

A.D. 1863, July 28.—Nº 1870.

COCKERELL, MAURICE.—(*Provisional protection only.*)—This invention, relating to mortise and other locks and latches, consists, as described by the inventor, "in making a follower or crank " fixed perpendicularly on centers; through follower or crank " I make an oblong hole; I then make a spindle, on which the " handles are fixed, and on the said spindle I fix a projecting " piece; I then make a lever, one end of which I fix upon a pivot, " the other end of the aforesaid lever I connect with bolt or lock, " so that by pushing the hand horizontally through the lock the " projecting piece of spindle is brought in contact with the afore- " said follower or crank, which follower or crank acting upon the " aforesaid lever brings back the bolt, thus causing the door to " open. In order to open the door from the opposite side it is " necessary to pull the handle towards the person wishing to open

" the door; this brings the projecting piece of spindle again in " contact with the aforesaid follower or crank, which follower or " crank acting, as before mentioned, upon the said lever with- " draws the bolt, and the door is thus set free."

[Printed, 4*d.* No Drawings.]

A.D. 1863, August 14.—N° 2013.

JONES, Frederick John. — (*Provisional protection only.*)— This invention relates to locks and fastenings adapted to travelling bags, purses, despatch boxes, and similar articles. As adapted to a travelling bag it consists of fitting to one of the opening sides or flaps " an ordinary nozzle for receiving a key, " and in the frame of that flap I form a bayonet slot; in some " cases I fit a fixed or movable eye to the same frame. To the " opposite frame I apply a bolt with a button for shooting it, " and in some cases I also add a spring for the same purpose. " A pin projects from the lower part of the bolt, passes through " the frame, and enters the bayonet slot in the first-named " frame when the bolt is shot, and thus the two frames are " fastened. In order to lock the fastening, the key acts upon a " bolt, and driving it behind the pin in the bayonet slot prevents " it being driven or forced back. When the eye before-mentioned " is fitted to the first-named frame a slot is made in the opposite " frame to admit of the eye assuming a position for receiving the " bolt on that frame. In some cases I make the nozzle movable " and connect the eye to it."

Another fastening " consists in the employment on tabs of a " plate with a button slot covered on the outside by a solid " plate. The button slot receives a stud or pin with an enlarged " head."

[Printed, 4*d.* No Drawings.]

A.D. 1863, September 3.—N° 2173.

JACKSON, Charles.—This invention relates to bolts adapted as fastenings to doors, windows, shutters, and similar purposes. These bolts instead of being fixed on the outer surface of a door or window, are fitted into mortises formed in the edge, and nothing is seen outside but the knob or handle, which protrudes through a slotted plate fixed in front; the bolt is fitted to slide in a cylindrical case furnished with an end plate which, when the case is adjusted in the mortise, is screwed to the edge of the door. Within the bolt case there is fitted a spring, which by pressing frictionally on the bolt, detains the latter at the point of position in which it is last placed.

A modification dispenses with the tubular case, and instead thereof, a plate suitably bent to support and guide the bolt, is so fitted into the mortise, that one of its bent ends comes flush with the edge of the door, to which it is secured by screws.

[Printed, 8*d*. Drawing.]

A.D. 1863, October 20.—N° 2565.

MICHAELIS, JAMES.—(*Provisional protection only.*)—“This “invention consists in manufacturing a purse of two separate “compartments, and fastening the same by means of a double-“action lock. This lock is made in three pieces, in the interior “of the centre piece is a bolt working from the centre with the “aid of two steel springs; this bolt slides both ways; on the end “pieces is a catch, which passes through a slot cut on each side “of the centre piece of the said bolt, locking into these catches. “The end or side pieces are fastened to the outer ends of the “cover of purse, and meet the body of lock, which is fixed “on the front or face of purse in the usual manner, thereby “making a secure fastening to both compartments.”

“The knob being in the centre of two mouth holes, and made “to open either way at pleasure, one of the two separate com-“partments only need to be opened, the articles contained in the “other compartment being kept secure as if in a separate purse.” The invention is also applicable to wallets and pocket books.

[Printed, 4*d*. No Drawings.]

A.D. 1863, October 26.—N° 2637.

STEINMETZ, BERNHARD.—This is the invention of a contrivance for fastening bags and similar articles, and capable of acting not only as a simple fastening, but of being locked with a key. It is described as follows:—“I fit at one side or jaw of “the frame or mouth of the bag to be fastened or secured a “plate, cap, or piece turning or working on a pin or axis, and “having a rim or flange in which is an opening or slot. I fix “a pin or stud at the other side or jaw of the said frame or “mouth. The engagement of this pin or stud with the plate, “cap, or moveable piece fastens together the sides or jaws of the

" mouth or frame, that is to say, when the pin or stud is intro-
" duced through the opening in the rim or flange and the plate
" or cap turned so as to bring a part of its rim or flange, but not
" the opening therein, against or opposite to the pin or stud, the
" sides or jaws of the mouth or frame will be held together or
" secured. To open them the plate or cap is turned so as to pre-
" sent its slot or opening to or opposite the pin or stud, so that
" the latter may be disengaged from the plate or cap.

The fastening " may be further secured by a key working a bar
" or piece which acts on the cap or plate and prevents it from
" being turned or worked in the disengaging or unfastening
" direction until released by the key."

[Printed, 10*d*. Drawings.]

A.D. 1863, November 5.—N° 2742.

HANCOCK, Henry, and VICKERS, William Henry, junior.—(*Provisional protection only.*)—This is an invention of a fastening adapted to doors, windows, safes, and similar articles. It consists of a particular arrangement at the back of a door of self-acting or spring bolts all capable of simultaneous action. "To
" the end of each bolt is fastened a chain, which is carried to and
" fastened round a stud or nut in the centre of the door; this
" nut is grooved, round which the chains are wound when the
" bolts are shot back; on the door are fixed two spring catches,
" one for the purpose of releasing the bolts, and the other for
" securing them when bolted. When the bolts are required to
" be released a small key is inserted from the front, which acts
" upon one of the spring catches; this spring catch releases the
" stud, by which movement the whole of the bolts are shot, and
" thus the door becomes thoroughly secured, while at the same
" time the other spring catch retains the nut, preventing it from
" being turned. This system of fastening can be applied to doors
" with the present locks. A steel guard is attached to the end
" of a bolt, and passed into the lock, forming a protector for the
" keyhole by the same movement, thereby effectually preventing
" the picking of the lock."

[Printed, 4*d*. No Drawings.]

A.D. 1863, November 16.—N° 2862.

HULSE, Josiah, and LAWRENCE, Joseph.—The object of *this invention,* relating to the fixing of knobs on lock and other spindles, is to avoid the use of the screws which are passed transversely through the necks of knobs, and by other means better secure them from working or becoming loose. The spindle is square, and the end which receives the movable knob is screw-threaded at the angles, and longitudinally grooved or fluted at each of its four sides. The knob at the other end of the spindle is intended to be permanently fixed on in the usual way. Upon the threaded end of the spindle is screwed a tapped metal collar having a circular plate or flange, which abuts against the rose plate; this collar is also screw-threaded externally and is fixed in this position by a amall screw, the point of which enters the groove in the spindle, the end being level with the bottom of the thread on the outside. The neck of the knob is (if of non-metallic material) lined with a metal bush, which is screw-threaded internally to screw on the collar where, when close up to the flange, it is held by a click or catch.

[Printed, 8*d*. Drawing.]

A.D. 1863, November 21.—N° 2934.

DE SAINT JEAN, Ludovic D'Estienne.—(*Provisional protection only.*)—This invention, relating to apparatus adapted to closing and fastening gates and doors and similar purposes, consists of a lever or cross bar, capable of oscillating or turning on a centre or stud fixed to a plate attached inside one part or side of a pair of folding doors or gates, This bar is, from the outside of the doors, made to turn by means of a key, and at the inside by a knob or button, until it comes in contact with stop pieces placed one on each side or part of the doors; the bar being then in a horizontal position, strikes a lateral projection on a vertical bolt, which is shot direct at the lower end, and fastens the upper part of the doors by means of a lever, to one end of which it is jointed.

[Printed, 6*d*. Drawing.]

A.D. 1863, December 9.—N° 3109.

HILLARY, Mark.—This is an invention of a strong and simple bolt adapted to the fastening of stable and other doors. The bolt "slides horizontally, and has a rising and falling motion at "its inner end which is contained within a strong lock case or

" box. The under side of the bolt has two notches formed therein " which rest upon a stationary pin passing transversely through " the lock case, and in some cases through the door also. The " bolt is held down upon this pin by a spring, and in order to " afford facility for shooting or withdrawing the bolt a finger hole " is made therein, or a projecting stud may be fitted thereon such " finger hole or stud coinciding with a curved slot or opening " made in the front and back lock plates. In moving the bolt " in or out the finger is inserted into the hole in the bolt, and " the rear end of the same is lifted slightly so as to disengage " one of the notches from the stationary pin, when the bolt may " be slid outwards or inwards as desired, and will then lock or " fix itself by bringing the second notch on to the pin, the bolt " being locked or fixed in both positions. If desired, an additional " bolt or catch may be fitted inside the lock acted upon by a key, " whereby the main bolt may be locked or fixed in its place, so as " not to be capable of being opened by the finger until it has " been released or freed by the key."

[Printed, 8*d*. Drawing.]

A.D. 1863, December 10.—N° 3117.

PYNE, Richard William.—This is an invention of a fastening adapted to window sashes, shutters, doors, and to similar purposes. It is described as follows :—

"I make use of a metal plate, attached to which by a hinge is " a tongue or flap. This I fasten to the upper sash. On the " lower sash is fixed another plate carrying a catch, over which " the tongue or flap before mentioned passes by means of a slot " formed to receive it. The catch turns on a pivot or stud, and " is arranged so that it has the same action as an eccentric or " cam, and when turned so as to secure the casement presses at " the same time tightly against the inside of the tongue or flap, " thus bringing the sashes together and making a close joint, " preventing all vibration of the windows, and rendering it " impossible to slide it back from the outside of the window."

[Printed, 8*d*. Drawing.]

1864.

A.D. 1864, January 5.—N° 28.

FENBY, Joseph Beverley.—This invention relates to the so constructing lever or tumbler locks, or locks with slides, that the key is introduced at a distance from the point where it is required to act, consequently the levers or tumblers, or the slides, are beyond the reach of picking instruments. To an ordinary lever lock is added a secondary bolt, actuated by any convenient means from outside the lock, and caused to slide either parallel with or perpendicular to the main bolt, passing through both or either of the front and back plates of the lock into a coverėd bush or bearing which is entered by the keyhole; this hole coincides with a similar hole in the secondary bolt when the main bolt is shot. The secondary bolt carries upon a stud a check piece, which has also a rotary or a lifting motion, whereby it is made to raise the levers when brought opposite, and by appropriate mechanism withdraw the main bolt.

A further arrangement in lever locks consists in a contrivance for throwing the check piece out of gear with the secondary bolt, should attempts be made to pick the lock. The invention is also applicable to latches.

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1864, January 9.—N° 57.

WALTERS, Philip.—This invention, relating to locks, latches, and keys, and to fixing knobs on spindles, consists, as regards locks and latches, in a certain arrangement of mechanism for withdrawing the latch by the action of the key. The follower consists of a horizontal bar having a cross piece at the end that comes between the parallel arms of a forked lever, which has its fulcrum attached to the lock case. According to the direction in which the knob is turned, the cross piece is caused to strike one or other of the lever arms. The movement thus imparted to the lever is communicated to the latch, which is connected thereto.

Forming on the end of a key a flat round plate instead of an ordinary ring; the plate has, for the purpose of hanging the key on a split ring with other keys, a slot of sufficient size for the ring to pass, but not large enough to allow the rings and ward bits of other keys to pass and become entangled.

Knobs are attached to square spindles which are screw-threaded at the angles. On one end of the spindle the knob is fixed in the usual manner. Inside the neck of the other or movable knob, there is a square hole corresponding to the size of the other end of the spindle, whereon is first screwed a tapped washer that determines the position for the knob, which is then slid on the spindle end, its neck abutting against the washer is held by a screwed collar, which embraces and fixes the knob and washer together.

This arrangement may be modified.

[Printed, 1*s*. Drawing.]

A.D. 1864, January 15.—N° 110.

WOLFSKY, Moritz.—(*Provisional protection only.*)—This invention relates to a lock adapted to fastening carpet bags and similar articles. The case of the lock or fastening is fixed by screws on the top of the back or flanged frame of the bag, and the catch or hasp is fixed to the front or single frame. The clasp of the lock is operated by a sliding button which engages it with the catch or hasp, and by the key, which so fixes the clasp or part actuated by the button, that the key is again required to liberate it before it is free to be moved by the button, when the bag is required to be opened.

[Printed, 6*d*. Drawing.]

A.D. 1864, February 13.—N° 379.

REDFORD, Joseph.—This invention, relating to the construction of locks, consists in introducing a number of levers ranged side by side, and capable of independent oscillation on one central fixed stud; one end of each lever carries a vertical piece furnished with a pin or stud projecting forward. The position or level of all these studs differs in the several vertical pieces relatively, and they have by moving the levers all to be adjusted to one level or line, in order to enter a longitudinal slot made in the back of the bolt head. This adjustment of the levers is effected by the key which is furnished with a duplex swivelling ward-bit that, when the key is inserted in the keyhole, by being pressed forward adjusts the levers, but does not turn with the key, which is also provided with a fixed ward-bit that operates to shoot or withdraw the bolt.

The invention also "consists in the use of a plate or shield " attached beneath the bolt in such a manner that when pressure " is exerted on the bolt (in endeavouring to "pick" the lock), " the bolt slides partly back, the plate also sliding and covering " the keyhole, which prevents the entrance of instruments or " false keys."

[Printed, 8*d*. Drawing.]

A.D. 1864, February 29.—N° 493.

BINGHAM, Edward.—(*Provisional protection only.*)—This is an invention of a "double-action lock," adapted as a fastening to carpet and other bags. This fastening in one condition acts simply as a spring catch, so that by pressing slightly on a nosel connected to a catch or pin, the bag may be opened. When greater security is required, a key is applied to operate a bolt which, after the fastening is closed and secured by the catch, renders all further action by pressure on the nosel of no avail until the bolt is withdrawn by the key, the chief object in the construction of the fastening being, that the hand of the person operating it runs no risk of having the thumb nail broken.

[Printed, 8*d*. Drawing.]

A.D. 1864, March 11.—N° 617.

SHARP, Charles John.—This invention relates to a lock or spring fastening adapted to secure portemonnaies, desks, cases and similar articles. "The lock plate has a slot or aperture made " in it; on this plate are flanges, between which a piston with a " catch is free to slide; a spiral or other spring is fitted to act " against the piston, and drives it back when pressure is removed " from the knob or projection by which it is moved. A hasp with " a notch in it is affixed to the flap of the portmonnaie or other " like article, and the lock itself to the body of the article, or " vice versa." When the hasp is pressed into the aperture in the lock plate, it raises the piston against the spring until the notch in the hasp comes below the catch, which immediately engages with the notch, the piston being forced down by the spring. When desired to open the fastening, the piston is raised by a knob with which it is furnished for the purpose.

[Printed, 6*d*. Drawing.]

A.D. 1864, March 12.—N° 633.

HANCOCK, Henry, and VICKERS, William Henry, junior. —(*Provisional protection only.*)—This invention relates to a system of spring bolts applicable to the inside of doors, shutters, windows, chests, and safes, and capable of being actuated simultaneously from the outside by a key. It is described as follows :—

" To the end of each bolt is fastened a chain which is carried " to and fastened round a stud or nut in the centre of the door ; " this nut is grooved, round which the chains are wound when " the bolts are shot back; on the door are fixed two spring " catches, one for the purpose of releasing the bolts, and the other " for securing them when bolted. When the bolts are required " to be released, a small key is inserted from the front which acts " upon one of the spring catches; this spring catch releases the " stud, by which movement the whole of the bolts are shot, and " thus the door becomes thoroughly secured, while at the same " time the other spring catch retains the nut, preventing it from " being turned. This system of fastening can be applied to doors " with the present locks; a steel guard is attached to the end of a " bolt, and passed into the lock, forming a protector for the key- " hole by the same movement, thereby effectually preventing the " picking of the lock. In some cases a scutcheon can be formed " on the handle for the locking by means of a slot being cut down " the centre of the handle, which slot is covered from view by a " slide."

[Printed, 4*d*. No Drawings.]

A.D. 1864, April 19.—N° 976.

SPRATT, John Eldridge.—This is an invention of a self-acting fastening adapted to securing gates and doors. It " consists of a plate on which are suspended upon pins two lugs or " catches, each of which rests at bottom upon a ledge, and " between which there is a space or opening; each lug is free to " swing inwards, and is prevented from swinging or moving " outwards by the ledge upon which it rests."

When applied as a catch fastening to a gate, the apparatus is fixed to the gate post, the gate being provided with a lever latch, bolt, or bar, and free to swing in either direction; the latch or bolt end just clearing the ledge when the gate closes, strikes one of the lugs, which rises over it and falls again against the ledge; the bolt end then comes in contact with and is stopped by the other lug, and as neither lug is capable of moving outwards, the latch or bolt is secured between them, and either the latch or bolt, or one or other of the lugs, must be raised before the gate is free to open.

[Printed, 8*d.* No Drawing.]

A.D. 1864, May 23.—Nº 1287.

HINKS, Joseph Lester, and HINKS, John.—This invention relates to different modes of fastening knobs to doors, drawers, and other articles and places, and to the spindles of locks and latches, in a manner to suit doors respectively differing in thickness.

According to one plan, the knob is so connected to the rose, that it can turn freely. Fixed on the under side of the rose are two projections, and on the door or part through which the spindle passes is fixed a concave disc. This disc has recesses or openings to receive the projections on the rose, which then by a rotary movement is fixed thereto, the knob having a square hole to receive the spindle end. Finger plates may be fastened by similar means.

Another mode of attaching knobs consists in adapting the rose to the knob by means of a slit tube having a flange at one end. The tube carries a loose disc, that is screwed to the door and covered by the rose, which, together with a thin washer for the neck of the knob to work against, is placed on the tube between the disc and the knob, which becomes fixed on when the end of the tube is opened or expanded inside the knob, by inserting in the slit or division of the tube any suitable instrument.

Describes another method requiring the angles of the square spindle to be screw-threaded.

[Printed, 1*s.* 2*d.* Drawings.]

A.D. 1864, July 6.—Nº 1679.

VON RATHEN, Anthony Bernhard, Baron.—This invention relates to what is termed "a new system of locks and keys," the object being to support the main bolt when shot, by fixing it in that position by means of a secondary bolt, which acts as a wedge, moving at right angles thereto, and may be also made to serve as a second bolt; the two bolts move simultaneously, the main bolt being the first to complete its movement is fastened by the other. This result is effected by the peculiar form of the key, which has two ward-bits, radially projecting respectively from the opposite sides of the key shaft. In some locks the latch bolt is also fixed in the same manner, half a turn of the key only being required either for locking or unlocking, the keyhole having two ward ways, one on each side of the center of motion.

Several examples of these locks are shown and described, and also of suitable double-bitted keys which, as adapted to different locks, may be made to vary in form to suit different contrivances introduced for the sake of obtaining additional security. Between the operations of locking and unlocking, the key has to be withdrawn and turned, as the ward-bit on one side is only capable of shooting the bolt, and the other ward-bit of withdrawing it. These locks can only be operated from the outside, fastening on the inside being effected by simply moving the main bolt by means of a knob or handle.

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1864, July 22.—N° 1826.

HINKS, John, and HINKS, Joseph Lester.—This invention relates to the fixing of knobs on lock and other spindles, in a manner to suit doors respectively differing in thickness; the knob at one end of the spindle is to be permanently fixed thereon in the usual way, but the fixed position on the spindle of the other or moveable knob, is made adjustable. The cavity up the neck of this knob is screw-tapped to receive the end of the square spindle, which is screw-threaded at the angles. A hole is transversely drilled through the shoulder of the neck of the knob parallel with its diametral plane, so as to pass close to one of the flat sides of the spindle, and when the knob has been screwed on the spindle end up to the point of adjustment against the door or surface, it is fixed there by a pin which is driven into the hole, and passing across the side of the spindle, compels the knob when turned to impart the same motion thereto.

[Printed, 8*d.* Drawing.]

A.D. 1864, September 6.—N° 2174.

WEAVER, Frederick.—The object of this invention, relating *to the construction* of latches adapted to doors, gates, and places, is to lessen, or, prevent the friction which takes place in the working of the latches in general use. This result is effected by interposing between the working frictional surfaces, small antifriction rollers which, instead of sliding roll up or along the surfaces to which they are opposed. One roller is disposed in a recess cut under the side of the latch so as to engage with the catch. Another roller is placed in a position and connected with the latch to roll against the staple, and to the latches of swing doors two rollers are placed, one to engage with the plate which guides the latch vertically, and the other to engage with the staple. By this means the latches are made to act more freely and are rendered more durable.

[Printed, 8*d*. Drawing.]

A.D. 1864, September 27.—N° 2367.

ADAMS, Arthur John.—(*Provisional protection only.*)—This is an inventlon relating to locks fitted with bolts which turn on an axis, and fall by their own weight, so as to protrude beyond the case. "The bolt is arranged to be acted on by turning a " handle or by a slide. The outer end of the bolt when desired " may be made with an inclined face or surface, so that the door " may be closed and retained on the latch as when using an ordi-" nary latch bolt. In order to lock the bolt and retain it from " being moved back by the rotating or sliding handles, slides or " tumblers are used, which by their own gravity tend at all times " to remain in the lowest or locked position; but when the bolt " is to be used as a latch bolt, these slides or tumblers are retained " up by a gravitating catch, which takes into a notch formed in " each of the slides or tumblers. The tumblers or slides are " capable of being lifted correctly into position by a suitable key, " so that the gravitating catch may take into the notches and " uphold all the slides or tumblers, and thus permit the bolt to " be acted on by the handles. The key is arranged in steps as in " ordinary tumbler locks. The slides or tumblers of this lock " will not admit of the gravitating catch taking into the notches " of the slides or tumblers unless the true key is used. If any " one or more of the slides or tumblers be raised too little or too " much by reason of a false key being used, the bolt will not be " at liberty to be moved back by the handles."

[Printed, 4*d*. No Drawings.]

A.D. 1864, September 28.—N° 2381.

CLARK, William.—(*A communication from Salomon Sturm.*)—(*Provisional protection only.*)—This invention relates to a duplex permutable fastening and spring-catch adapted to carpet bags, cases, purses, and similar articles. An ordinary spring catch constructed and fixed to the center of the top or frame of the bag, purse, or article in the usual way, is released by pressure on a stud connected internally to a spring; this catch is for the purpose of keeping the bag, purse, or article temporarily closed. The two duplicate permutable parts of the fastening are disposed on the flange of the top frame, one at each side of the catch. Each of these parts respectively consists externally of a button, which is mounted on a stud that passes through a hole in the flange of the frame and is free to turn; inside the frame fixed on each of the studs, is a small inverted socket, each socket having a narrow slit in its side, and on the opposite frame, coincident with the position of the two sockets, are two hooks, the turned up ends of which when the bag is closed, slide through the slits into the sockets, and when the sockets are turned by means of the buttons outside the hooks, are secured therein and the bag or purse is thereby locked. The top surface round the edge of each button is divided and marked, and in order to unlock the fastening, it is necessary that one particular mark on each button be brought round respectively opposite to two marks on the frame, the slits in the sockets being then in the position for allowing the hooks to escape.

[Printed, 6*d*. Drawing.]

A.D. 1864, October 5.—N° 2446.

BONNEVILLE, Henry Adrien.—(*A communication from Auguste Casimir Lehot.*)—This invention, relating to locks and latches, consists in conveniently placing on a fixed stud, either above or below the bolt of a lock or latch, a lever, the end of which carries a projecting pin, that is forced by a spring acting on the lever, into a recess in the bolt when the latter is withdrawn. The end of the lever projects beyond the end of the lock or latch, and when the door is about to close, it so strikes against the door-post or staple as to withdraw the pin, and the bolt is shot into the staple without having first to be driven back against its spring. The lever if made of flexible steel may form its own spring, one end being fixed to the lock box or plate. This detent

Lever may be applied to lift latches as well as to the bolts of half-turn locks.

[Printed 4*d*. No Drawings.]

A.D. 1864, October 26.—N° 2658.

MAY, CHARLES.—" This invention has for its object improve-
" ments in the construction of lock fastenings to the metal
" mounts or covers of smelling and other bottles. For this pur-
" pose in place of the spring catch commonly used for the purpose
" of securing and holding down the covers of smelling and other
" bottles which are released by a direct pressure upon a stud on
" the catch, I arrange the catch or bolt of the lock so as to
" move sideways, the instrument by which the catch or bolt of
" the lock is released moving to and fro in a slot formed in the
" collar of the mount. The bolt or catch is pressed up by a spiral
" or other spring, which is readily acted upon by pressing the
" thumb upon the front plate or instrument to release the spring
" bolt or catch. The mouths of spring mount smelling bottles
" are usually closed by a disc of ground glass let into the cover,
" which does not effectually close the same, and part of my im-
" provements consists in placing a disc or ring of cork over the
" glass or within the cover of the mount to ensure the perfect
" closing of the bottle when the cover is locked down."

[Printed, 6*d*. Drawing.]

A.D. 1864, October 29.—N° 2682.

CLARK, WILLIAM. — (*A communication from Claude Marie Bigard, junior*).—(*Provisional protection only.*)—This invention relates to the construction of bolts, which by means of a knob handle are made to slide at the back of a plate that is intended to lay level with the surface of the door or place to which it is attached; the end of the plate is bent to a right angle with the front to form an end plate, and in the angle is fixed a cast-iron strengthening piece which, as also the end plate, is perforated for the passage of the bolt, the only part of which that is seen, being the portion of its extreme end which slides into the staple, the door or surface being recessed to receive the bolt, and sunk to the form and thickness of the plate. The handle attached to the bolt and furnished with a knob, protrudes through an opening in the face plate, slotted to permit the rectilineal motion of the bolt, which when fitted to a door or other place, is entirely secluded from exposure to dust.

[Printed, 6d. Drawing.]

A.D. 1864, November 4.—N° 2728.

HARRISON, ELI JAMES.—(*Provisional protection only.*)—This invention relates to attaching the inside handles of carriage doors to their spindles, so as to avoid the use of the unsightly screw nut at the end and front of the head, and thereby make a neater attachment; also according to a similar method, fixing ordinary door knobs on their spindles. The end of the square spindle is made to taper corresponding with the central hole through the shoulder and neck of the knob, which is secured by a nut that screws on to the extreme end of the spindle, and fitting into a recess in the end of the knob, is hidden by a dovetail slide.

[Printed, 4*d*. No Drawings.]

A.D. 1864, November 25.—N° 2954.

NEWTON, ALFRED VINCENT. — (*A communication from the Excelsior Lock Company.*)—(*Provisional protection only.*)—This invention relates to the construction of hasp locks, and to an arrangement of the hasp and lock socket for preventing any lateral movement injuriously affecting the internal mechanism.

As applied to a trunk, the part of the hasp below the hinge is attached to the front by a pin or bolt, and the upper part of the hasp is formed into a circular case, wherein are the working parts of the lock. The end of the hasp is received by a circular metal flanged socket, sunk into the front part of the lid and so fixed by means of lugs and an internal plate, as to be capable of resisting any lateral strain. When the key is inserted it forces back a number of pins, so as to give freedom to a perforated disc plate or cover which, when turned by the key is capable of giving axial motion to a cross bar latch that secures the hasp.

By means of a movable escutcheon perforated to correspond with the holes in the disc, the choking of the said holes with dirt is prevented.

[Printed, 4*d*. No Drawings.]

A.D. 1864, December 10.—N° 3067. (* *)

HOLLY, JOHN. — (*Provisional protection only.*) — "Improved " mechanical arrangements or appliances for enabling the guard " of a railway train to keep all the carriage doors closed until " *the train* is brought to a standstill, and then disengage them " *all at once.*"

This invention consists in adapting to the under framing of each carriage, and at both sides thereof, a long stout wrought-iron rod, supported by bearings which enable the rod to be moved sideways therein. On each rod, below the door of the carriage, is a short lever arm, having a slot therein, to which is connected a bolt by a pin, the bolt passing upwards through a hole in the floor of the carriage, and there being a corresponding hole in the lower edge of the carriage door, so that when the door is closed, and the rod turned partially round, the lever arm pushes up the bolt into the hole in the carriage door, thus preventing it from being opened until the rod is turned back and the bolt lowered. The rods of the different carriages of a train are connected together by means of pins passed through coupling pieces formed with universal joints, so that the guard of the train, by turning the rods, may fasten and unfasten all the carriage doors of a train simultaneously, by means of a weighted lever in his carriage; accidents from the accidental or improper opening of the doors being thus prevented.

[Printed, *4d.* No Drawings.]

A.D. 1864, December 12.—N° 3074.

WOOD, THOMAS.—(*Provisional protection only.*)—This invention relates to means for communication and signalling in railway trains, and for securing the doors of railway carriages. Small apertures or windows closed by shutters are to be made as a means of communication between the compartments of railway carriages, and the attention of persons in a next compartment is to be attracted by a rattling noise, caused by the falling of shot contained in a hollow cavity in the shutter, when the position of the latter has been suddenly changed.

2nd. Signalling to the guard of a train is to be effected by the exhibition by day of a lamp, and at night by a light in an altered position, the lamps which light the compartments being disposed at the sides of a carriage instead of in the roof. This mode of signalling is to be combined with some system of communication employing wire or chains throughout the train, and connected with pulls or handles in the several compartments. The attention of the guard is to be attracted by the sounding of a gong.

3rd. Disposing in a position to be operated by the action of the signal pulls or handles, spring bolts or fasteners which will secure the door of a compartment until it is opened by the guard.

4th. So adjusting a lever or tappet in connection with an audible signal, that if a carriage door be opened by design or accident, it will come in contact with the lever and sound a gong.

[Printed, 4*d*. No Drawings.]

A.D. 1864, December 17.—N° 3138.

HOWES, Walter, and BURLEY, William. — (*Provisional protection only.*)—This invention, connected with the manufacture and fixing of carriage lamps, also relates to the fastenings employed for securing the doors of lamps, such fastenings being also applicable to the inside handles of carriages.

As regards lamps, in place of the ordinary hasp, a spring handle furnished with a tongue, is attached to the door, and a catch to engage therewith is fixed to the lamp. On closing the door, the tongue rides over the catch, the spring of the handle permitting it to turn; and to unfasten the door, the handle must be turned in the direction to lift the tongue free of the catch. The tongue is connected to the handle by means of a screw, the head of which for the purposes of protection and concealment, is covered with a screw cap, which screws on the end of the axis of the handle. This screw cap may also be adapted to the inside handles of carriages, to protect and conceal the screws, whereby the spindle and handle are connected.

In respect to the fixing of carriage lamps to the arm or bracket projecting from the body of the carriage, the method employed consists in the use of an annular nut, which screws on to a corresponding externally threaded tube divided longitudinally in two parts, one half part being suitably affixed to the lamp, and the other half part to the arm or bracket, the end of which is appropriately bent for engaging in a socket attached to the lamp, whereby the latter is supported whilst the fixing is applied.

[Printed, 4*d*. No Drawings.]

1865.

A.D. 1865, January 11.—N° 92.

HEATHER, John Fry. — (*Provisional protection only.*)—This invention relating to the construction of locks and keys adapted thereto, is described as follows :—

"The key consists of one or more cam plates fixed to a spindle " at right angles to its axis, and this spindle fits into barrels in

" the lock while the cam plate or plates project beyond the " barrels. The lock has two chambers, and the key being inserted " into the barrel of the first chamber, and turned round in the " ordinary manner, unlocks the keyhole of the second chamber, " and then enters the barrel of this chamber. The key being " now again turned moves two plates or sets of plates, one by " means of the motion given to the barrel, and the other by " means of the action of the key plate upon levers, slides, rods, " or other moveable pieces. The plates thus moved, which I " call setting or fixing plates, having needle points inserted in " them or in some of them, and the key being turned round the " point attached to any one plate mark upon another curves, " whose forms depend upon the form given to that portion of " the key plate which comes in contact with the corresponding " lever, slide rod, or other moveable piece, and the setting " plates being then cut to the forms traced by the points, and " brought nearer together, the points or any other pins, studs, or " teeth, placed in their stead project beyond the curves, just " touching them in every position of the setting plates, and these " plates being then ratchetted, if necessary, will upon an attempt " being made to move them by any other than the true key, " become firmly locked together, and any attempt to force a " motion, so as to throw the bolt of the lock will only result in " breaking or bending the false key or pick without injuring the " lock."

[Printed, 4*d*. No Drawings.]

A.D. 1865, January 27.—N° 238.

HELSHAM, Robert.—This is an invention of an instrument capable of speedily removing accumulations of dirt or flue from the barrel of a key. It is described as follows :—" A ring or " handle is formed, capable of being attached to an ordinary " ring or chain accompanying the person, and from the said " handle extends a rod or stem of sufficient length and diameter; " at the end of the stem a screw is cut, whose diameter is " less than that of the barrel of the key into which it is to be " inserted. On this screw a double sharp pointed worm is fixed, " the points of the worm being directed outwards when screwed " on for use; when not in use, they are directed inwards by un- " screwing, reversing, and rescrewing them on to the stem when "the points are guarded from injuring or being injured by entering a small cup which forms part of the stem."

In a modification of the instrument, instead of the worm being screwed on, it is made to form a solid continuation of the stem, and in the construction of new keys capable of discharging [illegible] dirt in this, the hollow end or barrel is continued up the stem and contains a plug or piston which, by means of a screw actuated by a button inside the ring, is, when necessary, made to approach the open end of the barrel and drive out the dirt.

[Printed, 4d. No Drawings.]

A.D. 1866, February 9.—Nº 369.

MEEK, George Edward, and HOWES, William Howes.

(Provisional protection only.) This invention relates to the construction of spring bolts and their sockets, and latches and locks for doors, window sashes, and drawers, and applicable to the doors and drawers of cabinet furniture.

An arrangement of socket for a spring bolt is described having a [illegible] or plug actuated by a spring for discharging any dirt or other matter which may chance to fall in. This socket is adapted to all [illegible] but most available in cases where the [illegible] by a spring or otherwise shoots [illegible] is employed it is held back in [illegible] a kind of bayonet slot. This [illegible] the ordinary door [illegible] sockets are also proposed.

[illegible] bolts consists in [illegible] tubular socket, which is [illegible] is made to [illegible] part [illegible] by the [illegible] springs or [illegible]

[illegible]

[illegible] consists in employing [illegible] for fasten- [illegible] made to [illegible] same [illegible]

"In the case of safes or boxes having double doors, the screw
" bolt is propelled from one door into the screw box fixed in the
" other door; or the screw bolts may in the case both of single
" and double door safes or boxes be propelled into holes having
" no screw threads within them. In this case there is less re-
" sistance to be overcome in shooting or withdrawing the bolts.
" By making the bolts advance and retire by a screw-like motion
" the said bolts cannot be withdrawn by any amount of pressure
" applied on their ends. The necessary rotary motion may be
" given to the screw bolts in a variety of ways."

In locks in which "the mechanism is capable of performing a
" rotation by the action of the key the screw bolts may be pro-
" pelled by means of a worm, to which rotation is given by the
" key, the said worm engaging in a worm wheel on the end of
" one of the screw bolts, the other screw bolts being geared
" thereto by toothed gearing; or a crown wheel may be made to
" rotate by the key, the said crown wheel engaging in pinions on
" the ends of the screw bolts; or other equivalent mechanical
" arrangements may be employed for giving rotary motion to the
" screw bolts."

These screw bolts may be employed in addition to plain or ordinary bolts, and propelled by a separate key.

[Printed, 8*d.* Drawing.]

A.D. 1865, February 27.—N° 552.

BROOMAN, Richard Archibald.—(*A communication from Timoleon de Bourrousse de Laffore.*)—(*Provisional protection only.*) —This is an invention of a key and weapon of defence combined in one. The shaft of the key is hinged "to the ring or handle,
" within or upon which it folds when the key is not required for
" use. The ring or handle may be then firmly held by the
" fingers or hand, and forms a good weapon of defence. When
" the key is required to be used it is opened out from the ring or
" handle, which may be of various shapes."

[Printed, 4*d.* No Drawings.]

A.D. 1865, March 1.—N° 570.

WHITFIELD, Samuel.—This invention, relating to locks and bolts for doors, door-bars, and drawers, consists in employing for such purposes, screw-threaded bolts which screw into their staples or boxes, instead of plain cylinders or bars which slide rectilineally in the usual way. "The screw-bolts may be propelled into or " withdrawn from the screwed staples, or screw boxes, or plain " staples in the jambs of the doors, or in the frames or parts of " other articles in a variety of ways. For example, in the case " of locks having a rotatory motion the action of the key may " cause a worm wheel on the lock to gear with a worm on the " screw bolt, and thereby give to the said bolt the rotatory motion " requisite to propel it into or withdraw it from its screw box or " staple. Or a crown wheel may be made to rotate by the key, " the said crown wheel engaging in pinions on the ends of the " screw bolts. The same means may be employed for rotating " screw door bolts which are independent of the lock, the said " screw door bolts being acted upon by a key or by hand."

These screw bolts, either connected with a lock or otherwise, may be used to fasten door-bars, trap doors, and drawers.

[Printed, 8*d*. Drawing.]

A.D. 1865, March 10.—N° 672.

SMITH, William.—This invention, relating to the construction of fastenings or bolts especially adapted for window sashes, and applicable to other purposes, consists in the employment "of a " rod with a flattened head or lump, formed by preference of a " T Γ or Z shape at one end, the shape being regulated accord- " ing to the purpose to which the fastening or bolt is to be applied, " and with a handle or knob, or sometimes without, as hereafter " described, at the other. Where the rod carries at one end a " knob or handle I insert a pin in the rod, and pass the latter " through a tube slotted similar to a bayonet joint, a helical spring " being inserted round the rod within the tube, and abuting at " the other end against the pin on the rod, in such manner that " the rod may be pushed forward and the bolt inserted in an " aperture formed for that purpose in the opposite sash; on " turning the rod, and with it the lump at its end, the latter is " prevented from retreating by means of its shape, and the pin " is secured by the slot in the tube, the fastening is then secure."

"According to another arrangement, where I dispense with the " knob or handle on the end of the rod, I prolong the pin on the " rod, and form a knob or handle at the end thereof; the rod is " fitted in guides, and a helical spring is placed between the front " guide and the pin; the top of the metal frame which is united to

" the guides is slotted similar to a bayonet joint, thus by pressing
" the knob of the pin forward, and throwing it over into the slot,
" the bolt is secured as in the previous case. To unloose the bolt
" or fastening the reverse action in each case takes place. Some-
" times I dispense with the lump or piece at the end of the rod,
" in which case the fastening is applicable to all purposes where
" fastenings or bolts are required."

[Printed, 8*d*. Drawing.]

A.D. 1865, March 20.—N° 778.

CHATWOOD, Samuel.—This invention, relating to locks adapted for safes, strong rooms, and similar places, consists :—

1st. " In lining the keyhole of locks with platinum or platinum
" alloy, and in coating or forming such parts of locks as are
" accessible from the keyhole with platinum or platinum alloy."

2nd. " Closing the keyhole passage of locks by a plug, which
" may be of any shape found desirable, but which I prefer to be
" round, on which plug I chase a thread or worm which fits into
" a corresponding thread or worm in the side of the keyhole boss.
" Into this plug I fit a fastener, which may be a simple catch,
" bolt, or spring of any kind; I prefer, however, ... to use a
" small lock, which I make of platinum or platinum alloy."

[Printed, 10*d*. Drawing.]

A.D. 1865, March 31.—N° 903.

MILNER, William, and RATCLIFF, Daniel Rowlinson. —(*Letters Patent void for want of Final Specification.*)—This invention, relating to fastenings adapted to metallic safes and other similar depositories, is designed,—

1st. To secure the sides, top, and bottom of the safe to the edges of the door when closed, so that neither of those parts shall be capable of being bent, wedged, or forced outwards by lateral pressure. This security is effected by the use of ribs, bars, hooks, or similar instruments or appliances adapted for holding the sides and the door together when the latter is closed.

2nd. Securing the bolts of safes having double doors arranged so that the vertical bolts of one door enter and lock into the top and bottom of the safe, and the bolts of the other door lock into the first-named door, the invention consisting in locking the bolts in the apertures into which they are shot, 3rd. The use and application of an additional length of angle on, which is secured to the inside of the door plate and bolted o the lock plate.

[Printed, 4*d*. No Drawings.]

A.D. 1865, April 4.—N° 944.

NABBS, Richard.— (*Provisional protection only.*)—This invention, relating to the construction of locks, and to fixing knobs and spindles to doors and latches, consists :—

1st. In applying to locks and latches a toothed or gated bolt turned by a half-cog cylinder mounted on the drill pin. To the head of the bolt is attached a stump, which enters corresponding slots in any required number of levers, so arranged, that when unlocked the stump shall enter each slot, but shall be unable to do so when the bolt is shot. For further security, a stump attached to the bottom lever is made to fit into cuts or gatings at the back of the bolt. The keyhole is closed by a rotary curtain.

2nd. The spindles of locks and latches are adjustably secured to knobs by means of a wedge or pin passed transversely through the bush and flange of the back plate that comes in contact with the spindle, which is screwed into the bush and covered by the rose. Two modifications of the above are also described.

For rim locks, the ends of the spindle are screw-threaded, and a hole is made through near the end to receive a pin, which also passes through a corresponding hole in the bush of the knob; the pin is secured by a brass ring, and the collar on the spindle s screwed up and adjusted to the thickness of the lock.

[Printed, 1*s*. Drawings.]

A.D. 1865, April 4.—N° 946.

THOMPSON, George Curr.—(*Provisional protection only.*)—This invention relates to a method of securing the doors of safes and other places, by means of a number of screws, which are respectively mounted in holes made through the door near to the sides or edges, in a position when the door is closed to screw direct in screw-tapped holes made in the door frame. All the screws are caused to turn simultaneously by means of a spur tooth wheel, which gears into a number of pinions mounted, one on the shaft of each screw, to give it rotary motion; in this way the door is screwed securely up to the frame. The requisite rotary motion is to be imparted to the wheel by a key, and when the screws are tightened up, the wheel is maintained in position by an ordinary lock. Other contrivances for actuating the screws, such as racks or endless belts, may be employed in substitution of the wheel.

[Printed, 4*d*. No Drawings.]

A.D. 1865, April 7.—N° 999.

KIMBERLEY, NATHAN GOLD.—(*Provisional protection only.*) —"This invention consists in constructing locks for safes and " other purposes requiring special security with a small vertical " bolt working in a slot in the beak or locking end of the usual " bolt of the lock, and upon the inside of the lock plate or in the " corresponding side of the safe I fix a catch worked by a spring, " which catch when the lock bolt is shot, presses upwards the " small vertical bolt, which is forced beyond the top of the ordinary " bolt and thus affords an additional guard. The small bolt " is withdrawn on unlocking merely by the action of the key upon " a lever, which brings it down flush within the lock bolt and " admits of the latter being drawn back. Instead of the spring " actuating the catch on the lock plate a wedge operating directly " from the key may be used to drive the catch into an aperture " on the under side of the lock bolt, and this arrangement may " be employed either in conjunction with a small vertical bolt or " without it."

[Printed, 4*d*. No Drawings.]

A.D. 1865, April 12.—N° 1043.

WALKER, JOHN.—This invention relates to the construction of latches either connected with locks or otherwise, and particularly to those latches which by means of a knob have a to-and-from sliding motion, such motion being imparted to the latch by lifting or depressing the knob and not by turning it. The invention is also applicable to those latches which rise and fall. As applied to the sliding latch of a door lock it is described as follows :—

"On the inside of the case of the lock, and underneath the " sliding latch, is an axis on which a lever turns. The two arms " of the lever are at right angles to one another, one being vertical " and the other horizontal. The end of the vertical arm engages

" with the sliding bolt by means of a pin or other connection, and
" the horizontal arm has at its end a hole through which a lock
" or latch spindle passes at right angles to it, that is, parallel to
" the axis on which the lever turns. In the two sides of the lock
" case, and near the end of the horizontal arm of the lever, are
" two vertical slots in which the spindle works. The knobs are
" fixed on the ends of the spindle. Underneath the horizontal
" arm of the lever, is a spring, which presses up the lever and
" maintains the latch in its shot or projected position. By pressing down either of the knobs the latch is withdrawn, and by
" removing the pressure from the knob it rises and the latch is
" shot forward. The position of the parts described may be inverted, and the withdrawal of the latch be effected by pressing
" the knob upwards instead of by pressing it downwards."

[Printed, 10*d*. Drawings.]

A.D. 1865, April 12.—Nº 1045.

HART, John Matthias.—The object of this invention "is to
" obtain increased security and protection against the illicit
" opening of safe or other doors. For this purpose the axle of
" the handle or other mover of the bolt is provided not only with
" a follower for following and fixing the bolts, and an arm or
" surface to give motion to such bolts, or with a series of such
" arms or surfaces to operate a series of bolts, but also with another
" arm or surface, or series of them, to act upon and place in position
" a sliding abutment, or a series of them, for holding the bolts in
" position. I form each of the levers (sometimes called tumblers)
" of the locks with a series of gatings, and the bolts with corresponding series of stumps at various regular or irregular
" distances apart, and each of these levers has also other slot
" openings or notches to receive other stumps from the bed or
" other fixed or stationary plate of the lock, so that in the event
" of the axis or of any one or more of the stumps being cut or
" forced away the parts may still be held together by others of
" them, so as to prevent the withdrawal of the bolt or bolts. These
" levers may be of various regular or irregular shapes. The belly,
" or that part of each of the levers acted upon by the key (when
" the bolt or a series of them is not operated by such key), is
" formed with a projection acting as a stop to enable the key to
" hold the levers in position during the locking or unlocking by
' the means employed to operate the bolts."

These bolting and locking arrangements variously modified are carefully described and illustrated in combination and in detail.

[Printed, 4*s*. 8*d*. Drawings.]

A.D. 1865, April 20.—N° 1096.

TAYLOR, Henry Kindon.—This is an invention of a bolt fastening combined with an indicator, adapted to water-closets, private rooms, and other places, the object being to secure the door inside and at the same time indicate to others seeking admission that the closet or room is occupied. For this purpose the fulcrum pin of an oscillating horizontal lever carrying a bolt at one end and a shutter or screen at the other is fixed in the door post. Through the door there is an opening, and within the range of the bolt end of the lever, there is a fixed staple for the purpose of receiving the bolt, which is slid in when it is desired to fasten the door inside. This act of fastening brings the lever into such a horizontal position, that the screen on its free end, entirely covers the opening in the door. Upon the outer face of the screen is legibly written the word "engaged," so that any other person seeking admission at the same time, would receive a silent but unmistakable intimation that the closet or room was occupied.

[Printed, 10*d*. Drawing.]

A.D. 1865, April 29.—N° 1194.

TUCKER, Walter Henry.—(*Provisional protection only.*)—The object of this invention relating to locks and lock-furniture, consists :—

1st. In the so constructing locks, that by the use of a revolving drum and a series of slides and other accessories, they shall not only be secure against explosible substances, internal space being reduced to a minimum, but also by the use of platina as a coating or otherwise, safe against the destructive effects of chemical or electric action, provision against violence being provided as described in the specification of a former patented invention dated December 17, 1861, No. 3159.

2nd. Rendering safe and strong room locks less liable to injury from gunpowder, by lessening as much as possible all the available internal existing space, and by contriving new moving parts to fill up the spaces left by the action of the bolt or other shifting mechanism.

3rd. Preventing damage to safe and other similar locks by force exerted upon the handle which throws the main bolt. This is effected "by such a formation and arrangement of the follower "connected with such handle and of the bolts of the said large "lock that they communicate with each other when the small "or security lock is unlocked, but are disconnected and the "handle left free to revolve when the security lock is locked "out."

4th. Relates to constructional arrangements in locks for lessening friction, equalizing action in both directions, and increasing the power by the handle in proportion to the increasing resistance of the bolt spring.

5th. Modification of locks having their combination security parts constructed to move in a circle round the axis of the key, similar to Bramah's, Cotterell's, or Yale's, or modifications of them.

6th. Making a changeable lock on a modification of the Bramah or slider construction, by the use and particular arrangement of a second drum with sliders, so formed as to constitute a series of movable locking plates. The sort of key suited to locks of this kind, is described in the specification of the said former patent.

7th. Making a keyless lock "by the use of a movable plate or "plates so formed and arranged (and contained in a suitable case) "that unless certain notches or gatings in such plates are brought "into a particular position the hasp which such plates are used "to secure cannot be released."

8th. Instead of placing the washer on the lock spindle close to the door, as described in the specification of the said former invention, placing it between the rose and the knob, so as to transfer the wearing friction to the rose. Also making recesses in roses, and using a covering rose.

9th. Securing the covering rose to the under rose plate by means of a movable dog or plate.

10th. Preventing the unscrewing of the knob after it has been adjusted on the spindle to suit the thickness of the door.

[Printed, 4*d*. No Drawings.]

A.D. 1865, April 29.—Nº 1201.

CLARK, William.—(*A communication from Paul Baudet.*)—The object of this invention relating to locks, keys, and fastenings, consists :—

1st. In adapting to locks and keys various appliances, comprising movable indicators whereby at a glance, at either the lock or the key, the state of the lock may be ascertained, whether unlocked or whether the bolt be singly or doubly shot. These indicators are either actuated by the movable parts of the lock, or by the motion of the key, which also is furnished with indicators that, if the key be withdrawn when the lock is unlocked, will point to zero, and to other divisions according to the state of the lock when the key is withdrawn.

2nd. So constructing locks, that when a key of the ordinary kind can be withdrawn, it is an indication that the lock is left properly locked, it being otherwise impossible to remove the key. This result is effected by the application in the lock of parts which operate to obstruct the withdrawal of the key excepting the bolt be shot.

[Printed, 1*s*. Drawings.]

A.D. 1865, May 22.—N° 1402.

GEDGE, WILLIAM EDWARD.—(*A communication from Matthieu Prospér Marotte.*)—(*Provisional protection only.*)—This invention of a "safety lock," as described by the inventor, "consists in a "novel combination, the distinctive character of which is that "a door furnished with it cannot possibly be opened by any "person unprovided with the proper key. This improved lock "opens from the interior by means of a slight pressure, and on "the outside by an almost invisible draw bolt by means of a hollow knob with slide. The movement is produced by a balance "which forms a lever and replaces the spring plate of an ordinary "lock. This movement works the half-turn lock which fulfils "the functions of the two bolts required in other locks; this "lock closes on the outside by means of a key, and on the inside "by a safety button; result due to the presence of an eccentric "within the lock."

[Printed, 4*d*. No Drawings.]

A.D. 1865, May 22.—N° 1406.

HODSON, WILLIAM.—(*A communication from James Hutson.*)—(*Provisional protection only.*)—This invention, relating more particularly to door locks, consists in combining in their construction a sliding plate which, when the door is locked from the inside by the key, is slid on the front face of the lock so as to close the outside keyhole, and is there held as firmly as the bolt, and the lock is so arranged that the door can be locked from the outside without moving the sliding plate, and unlocking from the inside is prevented. The plate slides in grooves upon the outer face plate of the lock, and has a keyhole which, when the bolt is withdrawn, is coincident in position with the main keyhole of the lock. A stud attached to the sliding plate is connected inside the lock to a supplemental bolt, which is actuated by the key. The locking bolt is regulated by a stud and tumbler with notches which hold both bolts. The key is formed to actuate both bolts from the inside, but only the locking bolt from the outside, the supplemental bolt and consequently the sliding plate then remaining stationary. Instead of one, two tumblers may be employed, one for each bolt. The sliding plate may be fitted to locks with many tumblers, or to ward locks without tumblers excepting the one in connection with the supplementary bolt.

The invention may be applied to other than door locks.

[Printed, 4*d*. No Drawings.]

A.D. 1865, May 27.—N° 1462.

DIELE, LUDWIG.—This invention relates to a locking apparatus designed for fastening by one movement or operation of the key, all the drawers in a double tier or set. This result is effected by long bolts having a series of projecting hooks, in a position independently to engage with recesses, one hook to each drawer, a separate bolt being required to each tier or set, comprising several drawers disposed one over another, all the long bolts being either operated simultaneously by a lock on a central draw, or the lock of the latter may not be combined with the general locking apparatus. The keyhole of the lock may be so enlarged as to admit the key in one position for unlocking its own lock, and in a reverse position for acting on the ends of the levers which are connected to and operate the bolts. The specification of an invention for which Letters Patent were granted to Jacob Safran, dated April 15th, 1857, No. 1070, is referred to.

[Printed, 10*d*. Drawing.]

A.D. 1865, May 30.—N° 1485.

GRAFTON, SIDNEY.—(*Provisional protection only.*)—This is an invention relating to " the keys of locks having through holes "; *the shaft of* the key of such locks being supported whilst turning by the two plates of the lock front and back, the object being so to form the extreme end of the key shaft which protrudes beyond the back plate, that it cannot be laid hold of and turned by any gripping instrument, which in the case of ordinary keys that project is oftentimes the means whereby such a lock is opened. Sometimes the end of the key is cut off flush with the outer face of the plate or nearly so, or a bearing for the end of the key shaft may be attached inside the plate, so that no part of the key passes through. When, however, it is arranged to bear on the back plate, to the end of the key is given a hemispherical, oblate, or prolate form.

[Printed, 4*d*. No Drawings.]

A.D. 1865, May 30.—N° 1487.

CALVERT, JOHN.—This invention relates to a permutable lock. It consists in employing cog wheels in combination with a circular plate or curtain furnished with pallet-like teeth projecting from its periphery in the direction of its axis. The lock described contains four cog wheels mounted on separate axes. "Each of the "cog wheels is constructed with gatings on the periphery thereof "formed by the removal or omission of two of the cogs, so as to "allow the teeth of the before-mentioned curtain (which would "otherwise take into the cogs) to pass across the wheels without "interruption. Parallel with each of the cog wheels and on the "same spindle is a wheel furnished with ratchet teeth, and a "detent or catch kept in position by a spring in the ordinary "manner, such ratchet wheel being connected with and actuated "by a stud or other analogous arrangement on the face or exterior of the lock. A portion of the periphery of the ratchet "wheel is constructed with a blank or without teeth, and a pin "is attached thereto so as to be capable of being placed between "any two of the cogs of the wheel with which it is connected. "The bolt plate is carried backward and forward by the before-mentioned curtain by means of a pin attached to the latter, and "which pin works in a slot formed in the bolt plate. By a "simple modification two or more bolts may be actuated in "different directions by the use of additional pins and slots. "The ratchet wheels are in the first instance set to the cog wheels "by means of the pins before mentioned, and upon so arranging "the cog wheels that their gratings in their peripheries will "coincide with the circumference of the curtain, the latter may

" be turned without interruption by means of the key, and thus " shoot or withdraw the bolts. This may be considered as the " normal condition of the lock. If, however, one or more of the " wheels be turned to the extent of one or more cogs, beyond " the blank or blanks upon the ratchet wheel or wheels, as will " be known by the click or clicks given by the ratchet arrange- " ment, the teeth of the curtain will be locked, and the latter " will be no longer capable of being turned in either direction, " until the wheel or wheels is or are restored to the original " position. It is manifest that a great variety of combinations " can thus be brought into requisition."

[Printed, 8*d*. Drawing.]

A.D. 1865, June 9.—N° 1578.

MEEK, George Edward, and HOWES, William Howes.—This invention relates to bolts, locks and fastenings adapted to doors, windows, drawers, and such like purposes.

Spring bolts are fitted in cylindrical cases and shot out by a helical spring. The stem or handle is fixed to the rear end of the bolt; it passes through the end of the case, and is furnished with notches for the purpose of engaging with a fixed staple. In some cases the end stem or handle is dispensed with, and instead thereof a lateral handle passing through a bayonet slot in the case is made (for the purpose of fixing the bolt) to engage with notches in the slot. Spring bolts forced into sockets let into the floor are employed as substitutes for ordinary door chains. Each socket for the purpose of expelling dirt, contains a plug resting on a spring. Other sockets are employed which, when the bolt is shot into them, send forth a supplementary bolt.

Locks and latches are so constructed that their spring bolts are made hollow, and contain the mechanism whereby, by means of the handle or key, the bolts themselves are operated. The cases are made cylindrical in form for the purpose of fitting holes made in the door with augers, instead of the usual form of mortise. The lock mechanism, wholly contained in the bolt, is intended to operate on spring bolts, carried by the main bolt, and passing through openings in the lock case. The key draws in the spring bolts, and forces out the main bolt. In lieu of levers and separate spring bolts and springs, the spring bolts may be fixed to the *ends of blade* springs acted upon by the bit of the key.

"The unsnecking of the bolt by the handles is effected by a small lever or arm fixed to the lock spindle, and provided at its extremity with an antifriction roller, which works either upwards or downwards against inclined surfaces formed on the inner end of the main bolt in the interior thereof."

"According to another form of latch suitable for outer doors, the bolt, which is cylindrical and fits into a tubular cylindrical case, is unsnecked on the inside by a knob passing through a slot in the case, and is opened from the outside by a peculiar key and lock action of a simple construction."

Small spring bolts adapted as window fastenings are contained in tubular cases, whence they are forced out by helical springs. These bolts will fasten the sash when closed or when more or less partly open.

[Printed, 1*s*. Drawing.]

A.D. 1865, June 10.—N° 1581.

GILMORE, Arthur Hamilton.—(*Provisional protection only.*) —This invention relates to apparatus applicable to doors and windows, for the purpose of maintaining them in any required position when open, and for securing them when shut.

As applied to doors it consists in placing in a hole made in one of the vertical styles of the door, a rod furnishes at its lower end with a weighted foot, for the purpose of pressing upon the floor. A cord or chain is connected to the upper end of the rod, passed over a pulley, and fastened so as to wind round the knob or handle when the latter is turned. By this means the weighted foot is lifted off the ground to permit the movement of the door, and gravitates when the hold on the handle is relaxed. Instead of a weighted foot the end of the rod may be made to impinge upon the floor by a spring.

In the case of windows, a horizontal rod imbedded in the sash frame is employed. This rod is forced endwise into one or other of a number of holes made at various heights in the window frame, whence it is disengaged by the turning of a knob or button.

[Printed, 4*d*. No Drawings.]

A.D. 1865, June 28.—N° 1726.

REYNOLDS, Edwin.—(*Provisional protection only.*)—This is an invention of apparatus designed for fastening sash windows, and prevent their being opened from the outside. The apparatus is "similar to the common sash fastening consisting of two "separate parts, one of which is to be affixed to the outer or "upper part of the sash, and consisting of a lever or arm affixed "or fastened to, by means of a rivet or other similar fastening, "a metal plate, so that the said lever or arm may revolve or turn "and be brought upon the other separate part, which is to be "affixed to the inner or lower part of the sash, and which part "of the fastening is a metal plate having upon it a curved guard "or stop, which prevents the lever or arm aforesaid from going "past or rising above the said second part of the fastening, as in "the ordinary sash fastening; but to prevent the forcing back "from the outside by means of a knife or other instrument the "said lever or arm, a spring stop is affixed to the under side of "the said second part of the fastening, the stop, a bevilled piece "of metal, passing through a slot or hole beneath the guard or "stop, the spring to which the stop is affixed allowing the lever "or arm to pass over by pressing down this bevilled stop in "fastening the sash, but entirely preventing its being put back "again until the spring and stop attached to it has been pressed "back by means of a knob on the upper side of the plate, which "passing through the said plate presses back the spring and "spring stop, and allows the lever or arm to be withdrawn and "the window to be opened. The said spring and spring stop "may be attached to either end of the plate, and the knob for "pressing it back placed over any convenient part of the said "spring."

[Printed, 6*d*. Drawing.]

A.D. 1865, June 29.—N° 1735.

NEWTON, WILLIAM EDWARD.—(*A communication from Frank Grant Johnson, Edwin Devoe, and Jay Jarvis Jones.*)—This invention relating to locks, consists in placing within an open-sided cylindrical frame, a series of similar cylindrical shaped tumblers free to turn therein, "each tumbler having cut, turned, or other- "wise properly formed in and extending entirely around its "periphery, but at different and varying distances from its ends, "a square shaped groove or slot. This frame with its tumblers "is placed within a suitable outer casing or shell, having upon "and partially around its interior, midway or nearly so between "its side plates, but outside of the tumbler, a fixed guard or

" locking plate or ring, made of such a form upon and along its
" inner edge, and arranged in such a manner with regard to the
" cylindrical tumbler frame that the frame and its tumblers can
" be moved or turned within the outer shell only when each and
" all of the tumblers have been depressed to the requisite degree
" to bring their slots in one and the same plane, and correspond-
" ing to that of the guard plate, around and upon the inner edge
" of which they then bear and move. The tumbler frame turns
" upon a fixed centre post of the lock, and has attached to it a
" bolt or catch of suitable shape to engage with and securely
" hold the latch end of the swinging link of padlocks when
" inserted in them, or any of the ordinary substitutes therefor
" in other locks. The outer casing or shell containing the tumbler
" frame can be either provided with apertures at the proper
" points for communicating with and depressing the tumblers by
" means of a proper shaped key the requisite distance to bring
" their slots to a common plane, or cut away sufficiently to expose
" the upper plate of the tumbler frame, which in that case should
" be similarly provided with apertures, as above described, for
" the shell; spiral or other suitable springs are used for retract-
" ing or throwing the tumblers back to their original positions
" after the key has been withdrawn."

[Printed, 6*d*. Drawing.]

A.D. 1865, July 6.—N° 1782.

CARTER, GEORGE.—This invention, relating to locks and latches, refers to the sliding or latch bolts, to the staples with which they engage, and to the spindles. The end of the sliding bolt is left square, and the upper side is bevilled. " The staple consists
" of a vertical tubular case open at bottom. The said case is
" square or rectangular in cross section. In the said case is a
" square or rectangular bar capable of sliding vertically. The
" lower end of the said sliding bar is bevilled, and when the
" bar is in its normal position the said bevilled end projects below
" the tubular case. The staple is fixed on the door frame in
" such a position that the bottom of the tubular case is imme-
" diately above the latch bolt. On closing the door to which the
" latch bolt is attached, the bevilled upper side of the said latch
" bolt is brought against the bevilled end of the sliding bar of
" the staple, and the said bar is raised in its case. By the con-

" tinued motion of the latch bolt it passes the raised bar, when
" the said bar falls and prevents the return of the latch bolt. In
" order to disengage the latch bolt from the staple it is necessary
" to withdraw the said latch bolt by a sliding motion from behind
" the sliding bar. This is effected either by the turning of the
" knob of the latch bolt, or by directly withdrawing the latch
" bolt, according to the construction of the latch bolt. The
" range of motion of the sliding bar is limited by a fixed pin
" passing through a slot in the bar."

The spindles for the sliding bolts are trigonal in transverse section, and the hole in the follower is made to a corresponding shape.

[Printed, 8*d*. Drawing.]

A.D. 1865, July 8.—N° 1812.

HEATHER, John Fry.—This invention, relating to the construction of locks and keys, is described as follows :—

"The lock contains two or more plates or pieces, which are
" so connected that in order to open the lock they must be moved
" at relative speeds, which can only be given them by the proper
" key. The key moves these pieces by means of its spindle, and
" of curved pieces or cams at right angles to its spindle, and
" these cams may be placed between plates attached to the
" spindle so as to be completely guarded or shielded. The lock
" being first constructed with the plates or pieces above men-
" tioned in a free state, so that either can be moved independently
" of the others, one or more holes are directed in them and needle
" points inserted, and the key being then introduced and turned
" round, setting the plates in motion at relative speeds depending
" upon the forms given to its cams, each needle point inserted in
" one plate or piece traces upon another, curves depending upon
" their relative speeds. The plates are then cut or grooved to
" the form of these curves, and studs inserted in the places of
" the needle points to work against the grooves or curved
" boundaries. Other short grooves can then be cut in the plates
" branching off from the true curves traced by the proper key, so
" that a false key or pick will drive the studs into these false
" curves, and all further motion will be stopped. If curves were
" traced by more than one key, every such key would open the
" lock."

[Printed, 8*d*. Drawing.]

A.D. 1865, July 21.—N° 1902.

WALTON, James.—This invention relates to the construction of locks, and to reversible latch bolts adapted to locks and latches.

1st. Lever or tumbler locks are so constructed, that if a false key be used, "a spring or movable tongue in the bolt is made to "act on one of the levers of the lock, and cause it to engage "with the stump of the bolt, and prevent the withdrawal of the "said bolt. I make that side of the circular recess in the bolt "against which the key acts to withdraw the bolt, moveable. "The said moveable side consists of a spring or moveable tongue, "having motion in a recess in the bolt. When the true key is "introduced into the lock, the said spring or moveable tongue is "not affected thereby, but on the introduction of a false key the "said spring or moveable tongue is raised in its recess in the "bolt, and one of the levers of the lock is made to engage with "the ordinary stump on the bolt in the following manner:—On "the said spring or moveable tongue is a stud which engages in "a longitudinal slot in the bottom lever of the series of levers of "the lock. The stump on the bolt works in another longitudinal "slot in the said bottom lever, and opening into the last mentioned slot is a vertical slot, opposite to which vertical slot the "stump on the bolt is situated when the said bolt is shot. "When a false key is introduced into the lock, the spring or "moveable tongue is lifted, and its stud made to lift the bottom "lever, and cause the vertical slot in the said lever to engage "with the stump on the bolt, and thus prevent the withdrawal "of the said bolt. The other levers of the lock are of the ordinary "kind."

The reversible latch bolts are so fitted and arranged as to be capable of being shifted or removed without requiring the removal of the top plate of the lock or latch, which is necessary when shifting bolts of ordinary construction.

[Printed, 1*s.* 6*d.* Drawings.]

A.D. 1865, August 2.—N° 1995.

ANDREW, Thomas, and TAYLOR, James Whiley.—(*Provisional protection only.*)—This invention relates to a contrivance for fastening the doors of safes and strong rooms, by means of a number of screws, to which simultaneous motion is given by the aid of a toothed crown wheel, which has its axis through the centre of the door. The door of the safe is formed with an inner and an outer shell, and in the cavity between, the wheel and mechanism is placed in combination with the lock, which may be of ordinery construction, and its action so connected with the screw bolts that the latter cannot be unscrewed until the lock is unfastened. Each screw bolt or spindle has on its inner end (in gear with the teeth of the crown wheel) a pinion, so that when the wheel is turned by a handle, the screw bolts revolve, and their outer ends, which are screw-threaded, enter corresponding tapped holes made internally in the sides, top, and bottom, of the front edge of the body of the safe, the screw bolts which screw into the top and bottom being mounted relatively at right angles to those which screw into the sides.

[Printed, 4*d*. No Drawings.]

A.D. 1865, August 2.—N° 2003.

BAILEY, **Richard**, and **EAGLAND**, **Joseph**.—(*Provisional protection only*.)—This invention relates to a "fastening or lock" adapted to windows.

Upon the bottom rail of a window sash is fixed a plate carrying a bolt having the form of a cranked lever, which is centered on a stud: "the short arm of the lever has pinned to it one end of a "link, the other end of which is embraced by the forked end of "a steel spring. There is also fitted under the plate a spring "catch formed at its front with a step. When the fastening is "open, the spring catch rises and holds back the long arm or "bolt of the crank lever. Upon the other part to which the "fastening is to be applied, in the present case the top rail of "the bottom sash, we fix a plate carrying the usual curved bolt "catch, and provided at its front with a projection. Now on "bringing down the top sash to close the window, just before "the sash reaches its lowest point, the projection comes in contact with the step on the spring catch in the opposite plate, "depresses it and releases the bolt, which is then thrust forward "by the action of the spring connected to the short arm thereof, "and is engaged in the curved catch on the upper rail of the "lower sash. To release or open the fastening, push back the "bolt until it passes the spring catch first mentioned, when this "catch rising, retains it until the catch is liberated by hand, or "in the manner herein-before described."

[Printed, 4*d*. No Drawings.]

A.D. 1865, August 12.—N° 2092.

NEWTON, WILLIAM EDWARD.—(*A communication from Charles Cushing Dickerman and Gilbert Smith.*)—This invention, relating to what is termed "a burglar-proof lock," of simple and economical construction, the tumblers of which are capable of being so adjusted or changed in position, that a key differing from that which closed the lock, or a key with moveable bits capable of a fresh adjustment, will be required to open it.

It "consists in forming the tumblers of the lock of two parts, "which are arranged in such a manner that they may with the "greatest facility be changed in position relatively with each "other. The tumblers are simply frames in which moving parts "are fitted or placed between guides, so that they, or rather the "frame of the tumbler, may be moved or adjusted to any position "required, each part having a spring at one side, which bears "against one of the guides to prevent the casual movement of "the parts. The space within the frame is of such a size as to "admit of the requisite degree of adjustment or movement of the "internal parts. The key is provided with moveable bits, the "position of which may be changed when it is desired to alter the "combination of the tumblers."

[Printed, 6*d*. Drawing.]

A.D. 1865, August 26.—N° 2198.

HODGSON, EDMUND DORMAN.—This invention relates to locks, which are constructed to contain two bolts, one the ordinary locking bolt, and the other, which may be called the security or second bolt, is operated by continuing the rotation of the key after the ordinary bolt is shot, and the second bolt is thereby locked in behind it. Upon this principle of construction, locks may be furnished with three or a greater number of bolts capable of being locked in succession by one rotation of the key, each bolt in turn locking the bolt shot immediately before it. Each bolt may have a distinct set of tumbler levers, or only one or two of them. The last bolt is locked by a spring blocking piece actuated by the key, the end of which is notched after the fashion of a Bramah key, and the part or instrument of the lock with which it co-operates has corresponding projections. The key when introduced pushes back this part and the blocking piece, and is then turned round to act in succession on the bolts.

Safe and similar locks shooting bolts from two or more sides, may have blocking bolts made to project out of the lock case.

Describes a modification wherein a barrel having teeth or projections is employed to shoot the bolts in succession, the secondary bolts and the key varying considerably in their mode of action.

The invention is in part supplementary to a prior patent, bearing date March 14, 1865, No. 714, and relating to safes with sliding doors followed by blocking pieces, which, according to the present invention, are actuated by the lock, and blocking pieces are also employed where four bolts are fitted to safe doors moving on hinges.

[Printed, 1*s*. 8*d*. Drawings.]

A.D. 1865, August 30.—N° 2232.

WRIGLEY, Thomas, and WESTHEAD, Marcus Brown.—This invention relates to apparatus designed for maintaining carriage windows at any height to which they may be lifted, preventing the vibration of windows, doors, or panels, and retaining and locking sliding sashes. It consists in the employment of "a "disc or roller of india-rubber, or other suitable elastic material, "having an aperture through its centre which is supplied with a "bush or eyelet; through this bush a pin or stud is passed for "supporting the same, and the stud is secured in a bracket "attached by screws or otherwise to the carriage or other "framing, in such a position that the periphery of the disc or "roller shall be in contact with and be caused to exert a pressure "upon the window or framing. Thus, when the window is being "raised or lowered, the said disc or roller will revolve, and give "a small amount of friction, until the window ceases to be sup"ported by the hand, at which time the pressure exerted there"upon by the india-rubber will retain the window in the position "in which it was left. The brackets and revolving discs are "arranged in the manner herein-after described, so as to act "upon the sliding portion of the window, door, or panel when "closed, and to counteract vibration."

When applied to the windows of dwelling houses, the bracket with the india-rubber roller may be attached to either the top or bottom sash, in such a position that the roller presses upon the other sash, and thereby prevents vibration. The sashes are *maintained in position* or fastened by means of a catch attached to the bracket engaging with a rack fixed to the side of the window frame.

[Printed, 8d. Drawing.]

A.D. 1865, September 15.—Nº 2360.

BROOMAN, Richard Archibald.—(*A communication from Nicolas Chrétien Goynaud.*)—This invention relates to locks adapted for securing trunks, bags, dressing cases, and similar articles. These locks consist of two parts, one a hinged plate carrying two projecting hooked catches which engage with the bolt is attached to the cover or lid, and the other which is fixed in front at the top edge of the body of the trunk or article, comprises the case containing the bolt and the locking details. When the trunk or article is closed and about to be locked, the free half of the hinged plate which carries the catches laps close upon the plate of the case, so that the hooked catches which enter holes in the plate are caught by two hooked projections that the bolt carries. The action of the key sets the sliding bolt free by raising a spring catch, and the movement of the bolt is effected by a thumb knob which is attached thereto, and projecting through a slotted opening in the front plate of the lock is slid in either direction by the hand.

[Printed, 10d. Drawings.]

A.D. 1865, September 23.—Nº 2442. (* *)

SIMPSON, John Hawkins.—(*Provisional protection only.*)—
" An improved apparatus or mechanism for locking and unlock-
" ing railway carriage doors, and for making signals with reference
" thereto."

This invention has for its object "the simultaneous locking or " unlocking of the doors of railway carriages, while it shows both " to the persons inside the carriage and on the outside which " door or doors is or are locked or unlocked." A longitudinal sliding bar is supported in suitable bearings along either the top or the bottom of the carriage, and is furnished with projecting bolts or other means of fastening, which, when the bar is moved in one direction, slide into corresponding eyes or other receptacles, and so lock the doors. Several doors are thus locked and unlocked at one time, the movement of the bar in the contrary direction, of course, releasing the doors. The latter may, however, be kept closed by means of a bar alone, which is made to pass across them; or where the first arrangement is used a longitudinal bar at one side may be connected to a similar bar at the other in such manner that the doors on one side of the carriage may be fastened while those on the other side are unfastened. In order to show to the passengers which doors are locked and which are unlocked, the apparatus used "may be made visible inside," or a moveable arm or indicator placed either inside or outside of the carriage may serve the same purpose, and may either be moved by the apparatus itself or be actuated by separate mechanism.

[Printed, *4d.* No Drawings.]

A.D. 1865, September 26.—N° 2457.

PARIGOT CLAUDE, and GRIVEL, ANTOINE, junior.—(*Provisional protection only.*)—This invention relates to securing the doors of safes to the surrounding sides or parts, to preventing the doors being bored by instruments, and to the construction of locks for safes and depositories.

1st. Securing the doors of safes is effected by four or more bolts which are caused to diverge in separate directions, so as to engage in recesses or catches situated at the front edge or part of the side, top, and bottom, against which the door closes. These bolts are actuated simultaneously by means of an eccentric mounted on a rod, which occupies the place of a key. The lock employed to secure the bolts is constructed on the permutation principle, and is described in the specification of a former patented invention granted to these inventors, and dated February 7, 1863, No. 347.

2nd. Drilling through the doors of safes and depositories is prevented by the intervention between the inner and outer iron plates, of a plate of hardened steel, having its surface roughened or cut like a file.

[Printed, *4d.* No Drawings.]

A.D. 1865, September 28.—N° 2484.

PRICE, CYRUS.—This invention, relating to locks and latches, consists of:—

1st. The introduction or application of a crank or right angle " lever, one part of which is parallel, or nearly so, with the key-hole, the other part is parallel, or nearly so, with the bolt of

" the lock; the centre of motion is at the angle, so that when a " false key is applied, it comes into contact with that part of the " lever next or parallel with the keyhole, and, pressing it, raises " the other end of the crank next the bolt into a step on the " bolt; the said raising of the lever or crank effectually prevents " the bolt being withdrawn; at other times (it) the lever is kept " out or free by a small spring. The part of the lever next the " keyhole has one or more nose bits or projections to the more " effectually answer the purpose of wards, and prevent a false " key passing them, but to which the right key is adjusted. " There is also a projection at the angle of the lever, and nearly " in a line with the part next the keyhole, which at the time the " nose bits or wards on the lever or crank are pressed acts on the " bolt, forces the said bolt back, and locks it by means of a " notch or opening on a lever and a stump on the bolt; the lever " is such as is generally used in what are called lever locks, with " the addition of the notch or opening for the stump on the bolt, " the (angle) lever may be placed at the right or left side of the " keyhole for right or left-handed locks."

2nd. The introduction for a similar purpose of a lever on the upper part of the bolt above the ordinary levers; this lever may be combined with the crank lever, or either of them may be used alone, the crank lever being applicable to most kind of locks.

[Printed, 6*d*. Drawing.]

A.D. 1865, October 6.—N° 2566.

FITZGERALD, Charles. — (*Provisional protection only.*) — This invention relates to a simple fastening designed for securing a door, either in a closed or set position, as may be required. A triangular plate of metal (by preference steel) has a hole drilled through one corner for the purpose of mounting it on a stud fixed to a plate or carriage screwed to the door frame; another hole is made in the plate to receive the end of a wire or cord, which thence may be led over pulleys, or put in connection by means of bell-cranks with a handle near a bed within the reach of an invalid, or in any other required direction or position. In its normal position the plate hangs clear of the door, but is brought into contact therewith to impede its opening by a pull on the cord which, by hooking the handle to a stud or pin, is kept in a state of tension whilst the fastening is in operation, or the arrangement may be reversed, so that when the cord is pulled the door shall be free.

[Printed, 4*d*. No Drawings.]

A.D. 1865, November 1.—Nº 2819.

GILMORE, Arthur Hamilton.—(*Provisional protection only.*) —This is an invention of apparatus designed for maintaining doors and windows in any required position when open, and for securing them when closed. As applied to a door, it consists of a rod furnished with a weight or spring. The rod is placed free to slide up and down in a vertical hole made in the thickest part of the door, its end resting on the floor is pressed down by the weight or spring with force sufficient to keep the door closed, or in a partially or entirely open position. The rod is suspended by a chain to a cylinder above, which has rotary motion through a connection with the door handle; the chain winding round the cylinder lifts the rod, which falls again when the hold on the knob is relaxed.

When applied to window sashes, the rod is placed horizontally in a groove or hole in the sash frame, the hole extending to one side; and at intervals up the side of the window frame are holes made to receive the end of the rod, which is constantly pressed towards that side by a spring, and drawn back, when required, to alter the position or fasten the window by a band or chain, having one end attached to the rod, and the other to a handle or button mounted on the sash frame at or about its center.

[Printed, 4*d*. No Drawings.]

A.D. 1865, November 4.—Nº 2852.

GARDNER, William.—The object of this invention is, so to construct locks for iron safes and chests, that any attempt to force back the bolt by end pressure, will cause the operating parts of the lock to assume a rigid position, which is increased in proportion to the amount of pressure applied; also by means of blocks moving with the bolt and following the key, the space otherwise available for the introduction of explosive substances, is reduced as much as possible.

"On one edge of this bolt a notch or recess is formed, and in " the lock plate, over the said bolt, a pivot is fixed, on which " *vibrates* a lever. The end of this lever is provided with a catch

" or projection fitted to drop into the said recess. This recess is " extended laterally on the side nearest the end of the bolt, so as " to be of an angular form, or of the shape of the letter **L**, and " the end of the catch or projection on the lever is made of corre- " sponding shape. The upper part of the recess in the bolt is " wide enough to allow of the catch dropping to the bottom of " the said recess when the bolt is thrown out by the turning " forward of the key. When the key is turned back the catch " will be thrown up by the action of the tumblers, and will thus " permit the bolt to be drawn back, but if any attempt should " be made to force the bolt in, by pressure applied to the end " thereof, it will cause the end of the catch to hook into the " angular or **L**-shaped recess, and lock all the parts so firmly " together that no key or other instrument will move them till " the pressure is taken off."

[Printed, 8*d*. Drawing.]

A.D. 1865, November 8.—Nº 2879.

RAINÉ, Jules Adolphe.—This invention relates to locks and fastenings which in their constructional arrangements, are fitted with two sets or series of tumblers or levers, one set being mounted on a fixed axis, and the other set upon an axis carried by the bolt, the two sets having, for the purposes of locking or unlocking, to be brought into correct relation to each other by the ward-bit of the key, otherwise they are respectively deranged in position constantly by the pressure of springs. The tumbler levers have projecting segmental cross heads or pieces, which in one set form channels for the passage of the cross heads of the other set, the motion of the bolt being caused by an open or double lever that is actuated by the key. "One series of the levers or tumblers " may have several successive cross pieces for the cross pieces of " the other series or class to pass successively, in which case the " bolt will be moved to and fro or out and in several times corre- " sponding with the number of these cross pieces, and each move- " ment on the bolt and on the tumbler levers may be effected " by a different key, so that two, three, or more keys may be " used to act in regular order with variations corresponding with " those of the tumbler levers, or the same key may act in suc- " cession by the same or by extra bits. In the case of spring bolts " or bolts which may be opened on one side by a handle or knob, " the axis or centre of motion of the one series of tumbler levers “in place of being carried by the bolt will be affixed to a separate plate capable of movement as a bolt, and of acting when operated by the key on projections from or forming parts of the bolt. A block or stop keeps the levers or tumblers in correct relation against the action of the springs. Several of such locks may be combined, each to act by different numbers and varieties of keys, and one of them may act to cover the keyhole of another or others.”

[*Printed*, 1*s*. 6*d*. Drawings.]

A.D. 1865, November 9.—N° 2889.

PITT, BENJAMIN.—This invention relates to the construction of locks, latches, and fastenings, in regard to fixing knobs on spindles in an adjustable manner suited to the thickness of different doors. “In the case of mortice locks a metallic slide plate is fitted on the exterior of the lock, such plate being so arranged as to be moved backwards and forwards by a screw which works in a stud attached to the plate, the head of the screw being placed in the fore end of the lock. The knobs or handles instead of being constructed with a continuous spindle in one piece, are each fitted with a spindle either of a rectangular or polygonal section, corresponding portions of each spindle being cut away, so that when such portions are brought together and overlapped they constitute one spindle of uniform diameter and section, or the spindles may be fixed in metallic sockets constructed to receive them and screwed into the knobs. The spindles are furnished with grooves cut thereon and corresponding with each other, so that by shifting the knobs the spindles can be adjusted to different thicknesses of doors and locks whilst the coincidence of the grooves is preserved. The spindles pass through an opening in the before-mentioned sliding plate, such opening being at the end of a slot formed therein. The plate is then actuated by the screw until the edges of the slot take into the grooves upon the spindles, thereby connecting the same, and thus holding the knobs or handles at the required distance from each other. In order to remove the knobs or handles it is only necessary to turn the screw head in the fore end of the lock in the reverse direction, when the sliding plate will be moved, and allow of the spindles being withdrawn through the opening in the plate.”

A modification applicable when glass, porcelain, or ebony knobs are used is also described.

Refers to a prior patented invention, dated May 14, 1844, No. 10,182, according to which one of the knobs was removable. "It has been found in practise that . . . . . . the roses have "been apt to become loosened and detached from the doors." The present invention obviates this "substituting for the roses "formerly employed plates or escutcheons, through which the "shanks of the knobs pass, the latter being held to the plates "or escutcheons by rings or collars formed on or attached to the "ends of the shanks. The plates or escutcheons are connected "with and secured to each other by screws passing through the "door."

[Printed, 1*s.* 2*d.* Drawings.]

A.D. 1865, November 15.—N° 2939. (* *)

CHAMBERS, George, and GREGORY, George.—"Improvements in locks or catches for portmonnaies, portfolios, or other "articles."

The object of this invention is to make a catch or clasp, such that the parts when fastened "may be allowed to expand without "such expansion being apparent." The construction is as follows: —A plate of any shape and metal is formed with a bed sunk in its middle (on the under side), and nearly as long as the plate itself, and a groove is cut on each side of the bed. A loose helical spring is placed in the bed and guarded "by a thin slotted plate "in which it works," and a box plate is put over the guard plate "and bedded in the grooves." This part of the clasp is placed on the outside of the flap; pins pass through the upper plate and through the leather or other material, and are riveted to an under plate. On the body of the article is fixed "a plate, having a flat "spring fastened to it, the end or tongue of which passes into a "projecting lug or loop." The parts are fastened by pressing the upper on to the lower, and can be expanded when required to the full length of the helix, "without the appearance of the "fastening being altered."

[Printed, 6*d.* Drawing.]

A.D. 1865, November 20.—N° 2979.

FENBY, Joseph Beverley.—(*Provisional protection only.*)—The object of this invention relating to the construction of bolt fastenings for safes and other doors and places, is to prevent the bolt being pushed back by the application of end pressure, for which purpose the bolt, which by preference is made cylindrical in transverse section with a conical enlargement at the end, has in addition to its sliding motion, a partial rotation given to it, after it has been shot into a slotted recess in the staple or the door frame, for the purpose of bringing the cone-formed or expanded end across the slotted opening, the two opposite sides of the cone being cut away parallel with the thickness of the bolt to permit its entrance. The sliding and partly rotary motions of these bolts " may be effected in a variety of ways," either in connection with locks or otherwise, and the form of the opening in the staple or part with which the enlarged end of the bolt engages, may be varied, the bolt head having a corresponding form.

[Printed, 4*d*. No Drawings.]

A.D. 1865, November 21.—N° 2991.

POPE, FREDERIC.—(*A communication from William Hodson and James Hutson.*)—This invention relates more particularly to the construction of door locks, which are fitted with a sliding plate so arranged, that when actuated by the key from the inside, the plate is slid in front of the outside keyhole and held so firmly in that position, that the lock cannot be tampered with from the outside; the sliding plate has a keyhole which, when the bolt is withdrawn, is brought coincident with the keyhole of the lock, so that the key can then be inserted from the outside, and unlocking from the inside is prevented. The sliding plate is connected to a supplementary bolt actuated by the key. "The " lock has furthermore an ordinary bolt, the shooting of which " locks the door, and the motion of which is regulated by means " of a stud upon the same passing into notches in a tumbler of " the ordinary description. This tumbler has other notches into " which fits a stud on the supplemental bolt to the sliding plate, " so that on moving both this and the locking bolt by the oper- " of locking from the inside, both bolts are held securely in the " locked position by the respective notches of the tumbler. The " beard of the key is so formed by cutting away a portion of its " lower end that when inserted from the inside it actuates both " the locking bolt and the supplemental bolt as described, but when inserted from the outside it only actuates the locking

" belt, leaving the supplemental bolt and consequently the sliding " plate stationary." The outer edge of the keyhole in the sliding plate is so bevelled off, as to afford no purchase for a lever.

[Printed, 6*d.* Drawing.]

A.D. 1865, December 6.—N° 3138.

DAWS, George.—The object of this invention is the locking and unlocking of " gates, turnstiles, and stiles, on railway cross-" ings by the action of a passing train, and in such manner that " as a train approaches a crossing, no matter on which line it is " running, it will lock the gates on both sides of the line, and " thereby prevent persons entering (but not prevent their passing " off the line) until the train has passed to a given distance, when " it again unlocks the gates. Supposing ordinary turnstiles are " used for admitting persons to and from the line, upon the lower " end of the stile post and under the platform I mount a " ratchet wheel, or a wheel having any desired number of notches " cut in it, four for example. When no train is passing on either " line there is nothing to prevent the rotation of the stile in the " ordinary way, but on a train approaching, the apparatus . . . . . " comes into action, throws a lever into the ratchet formed on the " wheels attached to the lower end of the stile posts, and the " latter are so prevented from revolving in the direction that " would admit persons on the line."

[Printed 10*d.* Drawing.]

A.D. 1865, December 9.—N° 3169.

GRIVEL, Antoine, the younger.—(*Provisional protection not allowed.*)—This invention relates to a permutation lock, adapted to securing the doors of safes, strong rooms, and depositories and to the construction of safes. The lock employs four or more bolts, one to each of the four sides of the door. The bolts have simultaneous motion from an eccentric mounted on a rod, which occupies the position of a key. The changeable parts of the lock consist of tubes differing in size and concentrically placed one over another on the rod. The under part of the tubes carry discs, and their outer ends carry index hands, which point to a circular set of numerals. The bolts are so formed as to be capable of hooking either into holes or to projecting pieces joined or connected to the inside; other plans are also devised for preventing the sides being separated from the door.

Placing between the inner and outer plates of metal which form a safe, a sheet of hardened steel having a roughened or cut surface similar to a file, so that if an attempt be made to drill through the plates, the rough hardened steel will destroy the cutting edges of the tools employed.

Permutable locks have bolts formed with two prongs somewhat similar to the escapement of a time piece; also one or more curved hook bolts mounted on the same axis, are employed in locks without keys or otherwise.

[Printed, 4*d.* No Drawings.]

A.D. 1865, December 19.—N° 3274.

DAWES, John Thomas, and ROBBINS, John.—This invention relates to indicating mechanism, operated in combination with door locks or latches for the purpose of showing that the room or place is occupied, also to attaching knobs to the spindles of door locks and latches.

The indicator is put in motion only from the inside of the room or closet by and in combination with the mechanism of the lock, and consists of a plate, on the other surface of which is inscribed the word "engaged." This plate obtains motion from the follower of the lock or latch to which it is attached; it is seen through an opening from the outside of the door, and when the latter has been fastened on the inside, the indication "engaged" is brought coincident with the opening when the bolt is shot.

The lock and other square spindles for the purpose of fixing and adjusting knobs upon them, are screw-threaded at the angles to receive a round nut or collar which is screwed thereon. In the shoulder or base of the knob there is a circular recess corresponding with the diameter and thickness of the collar, and leading from the recess centrally through the neck of the knob, there is a square hole corresponding with the shape and size of the spindle. The collar is first screwed on the spindle up to the surface of the lock, or the door as the case may be, and the knob is then slid on the spindle end up to the collar, which is hidden in the recess; the knob and collar are then fastened together by a small screw.

[Printed, 1*s.* 6*d.* Drawings.]

A.D. 1865, December 20.—N° 3290.

MARTIN, John.—This invention relating to door lock and latch furniture, refers to the mode of fitting, fixing, and applying knobs

and spindles. For these purposes "bearing plates with bosses
" adapted to pass into recesses for them are applied one on each
" side of a door opposite the "follower" when the lock or latch
" is applied in a mortice. The spindle may be fixed at one end
" to one of the knobs, and that knob may have a projection or
" neck or a loose filling piece to pass into the hollow boss of the
" bearing plate on that side and thus support that end of the
" spindle centrally. The other end of the spindle is formed with
" a screw thread to receive a nut which passes into the boss of
" the bearing plate on the opposite side of a door to support that
" end of the spindle. This nut may have holes or recesses to
" facilitate turning it by a key or otherwise, and this knob is
" provided with a neck which also passes into and bears upon
" the inside of the boss; in this last bearing plate the neck on
" the knob has a groove or recess around it, into which when the
" knob is applied a sliding piece or bolt carried by that bearing
" plate is passed to hold the parts correctly together. This sliding
" piece or bolt may be aided in retaining correct position by a
" spring or otherwise. A pin or pins from the neck of the knob
" may pass into a recess or recesses in the nut to steady it. By
" these means, in addition to a secure and simple holding of the
" knob to the spindle, the spindle and knobs are held more
" steadily and independently of the "follower." I form the holes
" or recesses for the bosses of the bearing plates by a cutting
" instrument which at its cutting parts is similar to a "centre
" bit," and is of size corresponding with the bosses, but in place
" of its having the ordinary centre pin as an axis of its motion it
" is formed, to pass over and turn upon the knob spindle or a
" spindle in its place, which then serves as the axis or centre of
" motion of the cutting instrument to insure the correct relative
" position of the holes or recesses produced, and consequently of
" the bearing plates when applied. The depth of cut is regulated
" by a guard."

[Printed, 1*s.* 2*d.* Drawings.]

A.D. 1865, December 23.—N° 3324.

GROVES, JOSEPH, and ROBINSON, GEORGE, the younger.—(*Provisional protection only.*)—This invention relates to the construction of safes, and to arrangements for protecting their locks and bolts.

1st. The inside edges round the door of a safe are furnished with projections which, when the door closes, fit into correspondingly formed recesses made round the front edge of the body of the safe, the object being to prevent the lateral separation of the parts by violent means.

2nd. Strengthening the front or edge of the body of a safe against which the door closes, by means of plates or bars of iron or steel made to the shape of an inverted trough, or an ordinary bridge rail.

3rd. Strengthening the part of the safe to which the door is hinged.

For the purpose of protecting safe and other locks from gunpowder or picking instruments, fixing at the part where the ordinary escutcheon is situated in the outer door a steel plate or block, having centrally a circular protector disc capable of partial rotation. In the disc there is a keyhole, which, in one position of the disc, is brought coincident with the keyhole of the lock for the purpose of locking or unlocking, and is afterwards turned a portion of a revolution, so as to bring a plain part of the disc over the keyhole; in this position the disc is afterwards fixed by means of a small supplementary lock, which receives its key through a hole in the steel block.

The bolts of safes and other places are also protected by means of a contrivance secured by a lock fixed underneath the knob.

[Printed, 4*d*. No Drawings.]

A.D. 1865, December 30.—N° 3382.

NEWTON, William Edward.—(*A communication from Edrick Francis Young and Joshua Granville Nickerson.*)—This invention, relating to locks and keys for the same, " consists in constructing
" the key of the lock with a sliding or an extension bit arranged
" in connection with parts within the lock, so that as the key is
" turned the bit will be extended, and be of a proper length to
" act upon the tumblers and the bolt of the lock. The keyhole
" of the lock is of such a length as only to admit the bit of the
" key when not extended, and consequently the lock cannot be
" opened by a key having a rigid or fixed bit which can enter the
" keyhole, as such a bit would be too short to reach the bolt or
" the tumblers."

The bolt of a padlock of the usual form, and having an ordinary shackle, is composed of a series of sliding tumblers slotted longitudinally. Springs bearing against the back ends of the tumblers respectively tend to keep the front ends in the notch of the shackle. The key is furnished with an extension bit, one part of which is permanently attached to the key tube; the other part is provided with a shank, which slides freely in the fixed part, the two parts being kept together by a spiral spring, and the sliding part thrown out or extended when the key is turned to act upon the tumblers, by prominent parts on the drill pin.

[Printed, 8*d*. Drawing.]

1866.

A.D. 1866, January 6.—N° 48.

TOLHAUSEN, FREDERICK.—(*A communication from Frederic Rudolph Vollschwitz, John James Schlaepfer, and Charles Frederic Rauchfuss.*)—This invention, relating to the construction of locks, consists in:—

1st. " Combining with the sliding bolt and bed plate of a lock " a small detachable case containing the mechanism for locking " and unlocking, from which a false bolt projects, the head of " which is provided with holes or pins to drop over studs, or " catch into holes in the inner end of the shank of the sliding " bolt, in such a manner, that not more than two holes are " required in the lock plate to receive pins or rivets for the " purpose of securing to the same the case containing the mechanism for locking and unlocking; and the same case can be " used for lock plates of different size, nothing being necessary " for different sized locks but to change the length of the shank " of the sliding bolt."

2nd. "A lock in which the bolt, with one or more tumblers, " and also the latch, if such is used, is enclosed in a cylindrical " (either round or oblong) case, which can be inserted in a door " by boring one or more holes large enough to take said case, " and thereby the time requisite to make a mortise for the " reception of the lock is materially shortened."

3rd. " So arranging the latch that it operates in a slot in the " head of the bolt, or it may be made to work side by side with " said bolt by a key in the usual manner."

[Printed, 6*d*. Drawing.]

A.D. 1866, January 22.—N° 207.

JONES, David, and UPTON, John.—(*Provisional protection only.*)—The object of this invention, relating to the construction of bolts for doors and other purposes, is to obtain greater security than is afforded by ordinary bolts. To this end, it is proposed "to apply to the head of the bolt a flat curvilinear handle, furnished with a knob on its upper surface, the under surface being provided with a slotted projection or hasp; the plate or foundation of the bolt containing the tubes or rings in which the bolt slides has a lock fitted therein, the catch of which gears with the slotted projection under the handle; thus, when the bolt is driven home, and the handle pressed down, the lock fastens the bolt, which cannot be again raised without the application of a key, as it is constructed on the ordinary principle of the street door lock."

[Printed, 4*d*. No Drawings.]

A.D. 1866, January 23.—N° 215.

BAKER, Thomas.—(*Provisional protection only.*)—This invention relates to sash fastenings, and is also applicable to other purposes. It consists of a screw and two internally threaded sockets; each of these sockets is cast or attached, projecting from the back of a plate, having holes to receive screws for fixing them centrally, one to the front of the lower rail of the top sash, and the other to the front of the top rail of the bottom sash, so that when the sashes are closed, the holes through the two sockets shall be in a direct line to receive the screw, which, for the purpose of fastening the window, is screwed through both. The screw is prevented from being fully drawn out of the front socket by means of a collar or other suitable contrivance.

[Printed, 4*d*. No Drawings.]

A.D. 1866, January 25.—N° 254.

JONES, David, and UPTON, John.—(*Provisional protection only.*)—The object of this invention is the construction of a window fastening that cannot be opened from the outside by the insertion of a knife between the window frames; and to this end, in order to prevent by such means the withdrawal of the ordinary "hinged horizontal bolt from the hasp or catch, ... we propose to form a slot or grooved space in the bolt of sufficient length, not

" only to pass on to the catch, but also to gear with a tooth fixed
" to the end of a flat spring; the front of the tooth is curved like
" a door bolt, and allows the bolt to pass over it, when it springs
" back, and thus secures the bolt from being drawn back, except
" from the inside of the window; this is easily effected by com-
" pressing the spring against the fixed hasp, when the bolt may
" be released."

[Printed, 4*d*. No Drawings.]

A.D. 1866, February 23.—N° 552.

HADDAN, John Coope, and HADDAN, Herbert John.—The object of this invention relating to the construction of safes and the fastenings which secure them, is to prevent "wrenching "or prizing" open the doors by means of wedges or levers, which when applied have the effect of springing or bending out the part of the safe or door-frame, so as to release the bolts. To this end the configuration of these safes, which are respectively supported on suitable brackets, is either circular, elliptical, or curvated, and the perimeter of the door and the doorway or opening, have a corresponding form or shape, the door being either hinged to one side or altogether removable. When the door is circular and removable, its inner surface near the edge is furnished with projecting lugs, which, when the door is placed in the opening and slightly turned, fasten it by sliding behind projecting parts in the surrounding frame, and thus it becomes firmly fixed, and is secured from being turned back by the lock which shoots its bolt into a fixed recess. In some cases, levers severally mounted on a fixed central fulcrum, and having hooked ends to engage in holes in the door-frame, are employed, the bolt of the lock securing the levers in position when the door is fastened. Removable rods with ends dovetailed to fit into dovetail recesses in the door-frame, and levers otherwise shaped at the ends are also employed for purposes of security.

The main bolts of one of the safes described are arranged equidistant in radial positions inside the door, and severally caused to diverge simultaneously in a direct radial line behind projecting parts of the door-frame, by a central apparatus, and according to another arrangement, are when withdrawn, severally brought into a tangent position, by the turning of a central disc to which they are pin jointed. In some cases the doors are fitted to slide in dovetails, small locks of approved construction being employed to prevent the regression of the main bolts and fastenings.

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1866, March 2.—N° 637.

CARPENTER, JAMES.—This invention, relating to the construction of watch and clock keys, is in part applicable to lock keys, the object being to effect an improved brequet action in the keys of timepieces, and to prevent accumulations of dust or flue in the barrels of such keys, and also in the barrels of the keys of locks.

It is proposed, "in lieu of the ordinary double-toothed rack " formed on the periphery of the brequet key, and the spring in " the upper part or cap of the key (called the thumb-piece), to " form a rack on the under surface of such thumb-piece, the pall " or tooth extending vertically from the body of the key into the " rack, and thus being concealed from view; this pall rests on " the upper end of a helical spring contained in the body, the " spring serving to permit of the yield and return of the pall to " the action of the rack. The thumb piece is set on a pivot in " the body of the key."

For the purpose of excluding dust, a plug or stopper is fitted to slide in the barrel of a key, being when not in action, flush with the open end, so that the entrance to the barrel is effectually closed. The "plug is connected to a wire rod passing up the " tube or barrel, and terminating in a disc or plate to form a " head, so that when the barrel is fitted to the body the lower " end of the helical spring presses on the head plate, and keeps " the plug or stopper down to the bottom of the barrel; but " when it is desired to wind up the watch or clock, the key is " pressed upon the head of the winding shaft, and the stopper " retreats up the barrel against the action of the spring, so as to " permit of the passage of the barrel on the axis. There may be " a ring on the top of the thumb-piece for attachment to a chain, " if desired. For keys of ordinary locks the system is the same " with regard to the stopper, but the spring would take its bearing " from the internal end or surface of the barrel."

[Printed, 6*d*. Drawing.]

A.D. 1866, March 2.—N° 641.

TANSLEY, JAMES.—This invention, relating to the construction of safes and to locks for the same, consists, for the purpose of obtaining increased security, in fitting to safes two doors, one outside the other, and so arranging the locking apparatus, that the bolts or fangs connected with the outer door will lock into the face of the inner door. Ribs are formed on the contiguous surfaces of the doors, those on the inner door fitting into the intermediate spaces formed by the ribs on the outer door, the doors being hinged at opposite sides, except when folding doors are used for the inside, the object being to render the safe capable of withstanding the action of wedges driven in between the sides of the safe and the edge of the doors. The top and bottom plates are formed "with a fillet, which fits into transverse recesses made in "the inner face, and near the upper and lower edges of the outer "door. The door will therefore, when shut, interlock with the "top and bottom plates, and enable them to resist the lateral "strain of wedges driven in between them and the door. This "arrangement of interlocking doors applies also to the windows "and doors of strong rooms."

The lock and bolts employed may be of any approved construction and arrangement.

It is proposed to mount the safe on a turntable free to rotate on a central vertical axis properly secured to the basement or otherwise, the object being to afford a burglar no purchase for crowbars or implements.

[Printed, 10*d*. Drawings.]

A.D. 1866, March 17.—N° 799.

HINTON, FREDERIC.—This invention relates to the construction of safes and depositories, to the manner of securing the cover or door, and to the locking arrangements.

These safes are (by preference) cylindrical in form, and the door or cover which is removable is circular fitting into an opening or door way in the safe having the same configuration and furnished round its inside with a strong projecting ring or collar. On the inner surface of the door or cover are fixed near its periphery at triangular distances, three strong lugs which, when the door is closed pass through corresponding square notches cut in the ring; the door when closed is caused to revolve a slight portion of a revoon, so as to slide the lugs behind the solid part of the ring, and s secure the door, the turning back whereof is prevented by the k, which is fixed in a strong frame securely attached at one le to the inner surface of the door, and shoots its bolt into a cess formed at the back of the ring. The keyhole through the oor and the keyhole into the lock do not coincide, so that the key does not pass direct into the lock but requires, having passed through the door, to be turned a portion of a revolution, and in its passage its ward-bit has first to clear a set of wards fixed between the inside of the door and the front lock plate, before it comes opposite the keyhole of the lock, when it is again pushed forward to its destination in the lock, which may be of any approved construction. By this arrangement picking instruments cannot be inserted, and any gunpowder introduced through the outer keyhole could not find a direct passage into the lock, but would fall into the body of the safe.

[Printed, 10*d.* Drawing.]

A.D. 1866, April 14.—N° 1056.

COOPER, THOMAS, the younger.—(*Provisional protection only.*) —The object of this invention relating to locks for bags and portmanteaus, is the manufacture of a lock for the purpose, that is simple and cheap. Two locks are shown in the drawings.

The first, adapted to bags, is a double-action vertical bolt lock, consisting in detail of the lock plate, spring bolt, feather spring, drill pin, tumbler bolt, tumbler, tumbler spring, and the stump for working both bolt and tumbler. The second lock has a single-action horizontal bolt, and is adapted for either bags or portmanteaus, its parts comprising a lock plate, tumbler bolt, tumbler, drill pin, tumbler spring, and the stump which, as in the first lock works both bolt and tumbler.

[Printed, 6*d.* Drawing.]

A.D. 1866, April 16.—N° 1065.

ADAMS, JOSIAH.—(*Provisional protection only.*)—This is an invention of a window sash fastener, consisting of two parts, a bolt and a staple, respectively fixed, one to the meeting rail of each sash. The bolt is mounted to slide in a case, when pressed endwise by a handle on its outer end, by which, when brought into position to engage with the staple, it is caused partially to rotate, its inner end having, projecting laterally, a fixed spur or tappet, which passes behind the staple when the bolt is turned; the inner surface of the tappet and the back surface of the upright part of the staple are correspondingly inclined for the purpose (as the two surfaces slide in contact), of drawing the respective meeting rails of the two sashes together. Fixed horizontally to the staple plate there is a center pin which points, when the sashes relatively are in the position to be fastened, directly to the axis of the bolt, in the end of which there is a hole made to receive the pin when the bolt is pushed up to the staple; this pin having hold of the bolt, not only prevents the raising of the bottom sash, but it also acts as a center to steady the bolt during the frictional contact of the inclines. When in order to unfasten the sashes the bolt is unturned, it is forced back by a spring when the tappet is clear of the staple.

The form of the bolt tappet may be modified.

[Printed, 4*d*. No Drawings.]

A.D. 1866, April 19.—N° 1100.

BEADON, George.—This invention relates to the attaching or fixing knobs upon the spindles of mortise and other locks and fastenings. It is described as follows:—

"The moveable knob is formed with a hole in it as usual,
" through which the end of the spindle is passed, and the face of
" the knob is formed so as to be capable of removal from the
" knob and of being securely replaced if desired. The end of the
" spindle is secured in the knob by means of nuts and screws
" thereon or by cotters and washers, after which the hole in the
" face of the knob may be closed or otherwise, as desired. By
" these means the knob is capable of ready adjustment on the
" spindle to suit different thicknesses of doors."

Two modifications are shown, one, adapted to a mortise lock, has the loose collar in one knob and the spring in the other held respectively on the ends of the spindle by a cross pin or cotter, and the other a rim lock, has the knobs held on by screw threads on the spindle end.

[Printed, 8*d*. Drawing.]

A.D. 1866, April 20.—N° 1118.

ALLEN, James.—This invention relates to a kind of lock or fastener, which projects four bolts in opposite directions by means of a central cone-formed slide or circular "wedge bolt." This bolt is "placed in the center of a framework of metal, and serves " to put in action one or any number of bolts placed around it. " This wedge bolt after it has been caused to force out the bolts " around it is made secure by perforated or slotted revolving " steel plates or bolts fixed on pivots or shafts in the framework " of the fastening or lock; the perforations or slots in these said " revolving plates or bolts passing over pins or hooks fixed to the " wedge bolt; the revolving plates or bolts are moved by a key " fitting in the ends of the pivots or shafts; the position of these " shafts can be altered from the back or front of the lock or " fastening as often as desired. The wedge bolt is moved in- " wards and outwards by turning a revolving screw, the head of " which is placed outside. This revolving screw moves the " wedge bolt by working on a pin or in a nut fixed in the said " wedge bolt. When it is wished to close the improved lock or " fastening the wedge bolt is moved inwards by turning the re- " volving screw, and the bolts placed around it are forced out; " the wedge bolt is then locked or held firm by the revolving " plates or bolts on the pivots or shafts, and which revolving " plates or bolts are moved into the required position to fasten " the wedge bolt by turning the ends of the pivots or shafts on " the outside of the fastening or lock. To open the lock or " fastening the revolving plates or bolts are moved back to their " first position by turning the pivots or shafts, when the wedge " bolt can be moved back by turning the revolving screw in the " opposite direction to that previously described, and the bolts " placed around it will be brought back into the framework of " the lock, aided by suitable springs. For a chest or box " lock the action of the wedge bolt is reversed, thus to open the " chest or box the wedge must be moved inwards so as to " raise the bolt, and when the box is closed the bolt will be " lowered by a spring, and the wedge bolt locked or held firm by " the revolving plates or bolts."

[Printed, 8*d*. Drawing.]

A.D. 1866, May 11.—N° 1352.

HART, John Matthias.—The object of this invention relating to a mode of mounting knobs on the spindles of locks and latches, is to obtain means for correct adjustment and steady action. To this end the spindle is entirely divided longitudinally or made in two parts, the two knobs being firmly fixed, one on the end of each part or half. These half parts are inserted respectively at the opposite sides of the lock, each passing through the follower and into the knob on the opposite side. The two parts thus lapped together form a square spindle which fits and fills the square hole in the follower, into which, transverse to the square hole, is fitted a set screw, the end whereof when the screw is tightened up, impinges against one side of the spindle. By means of a hole in the head plate of the lock, the set screw is reached by the aid of a screw driver, and when the knobs have been pressed up against their respective rose plates, the two parts of the spindle are forced together and against the opposite side of the hole in the follower by the pressure of the screw. In this manner the knobs can be adjusted to their respective places with the greatest nicety and fixed, whilst the spindle by the same means is secured to the follower.

[Printed, 6*d*. Drawing.]

A.D. 1866, May 11.—N° 1356.

CRAIG, JOHN.—(*Provisional protection only.*)—The object of this invention, relating to a method for securing door handles, is to fix them on their shafts or spindles, in such a manner as will prevent their coming off. To this end a hole is bored longitudinally through the axis of each knob or handle, and in the outer end of each there is a hexagonal recess, made to receive a nut of corresponding form. The spindle at one end, instead of a nut, may have a hexagonal head forged on to fit to the recess in one of the knobs, which, being placed on the spindle, the latter is pushed through the follower and lock; the other knob is then placed on the spindle end which has passed through the lock and door, and the nut is screwed on as far as the length of the knob will permit. The latter is then drawn forward, so that the nut passes into the recess, and then a washer or plate in two half parts is fitted into the space between the shoulder of the knob and the door, to which, by means of pins or screws, the washer is affixed, and, this being done, it is not possible for either of the knobs to slide or become loose upon the spindle.

[Printed, 4*d*. No Drawings.]

[illegible]

[illegible] —This [illegible] [illegible] the [illegible] the [illegible] [illegible] [illegible] [illegible] [illegible] &c., and [illegible] [illegible] [illegible] the fire-proof arrangements.

The [illegible] fitting [illegible] [illegible] grooves [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]. The [illegible] employed [illegible] [illegible] [illegible] [illegible] [illegible], the [illegible], [illegible] [illegible] the [illegible] of [illegible] [illegible] only [illegible] [illegible] [illegible], and the [illegible] [illegible] [illegible] [illegible] the [illegible] [illegible] [illegible]

[Printed, no Drawing.]

A.D. 18[illegible], June [illegible].—N° 15[illegible].

[illegible], [illegible] [illegible].—This invention, relating to the construction of locks and latches, consists; as regards locks:—

1st. "In constructing an oscillating tail for the prolongation "of the bolt called the [illegible]. The said oscillating tail is secured "to the bolt by a pin on which it turns, and is so shaped that "the key on being turned acts upon it so as to shoot or withdraw "the bolt. This oscillating tail either passes under a bridge, "with which in the shot or withdrawn positions of the bolt it "engages, or is gated to a stump attached to the case of the "lock, thus acting as a lever as well as the bolt tail; more than "one of these oscillating tails may be employed, in which case "one only may be so shaped on its under side as to be acted on "by the key so as to shoot or withdraw the bolt, or more than "one, or all, the said tails may be so shaped. Any of these "oscillating tails, which are not shaped for the key to act on to "shoot or withdraw the bolt, are shaped to a curve, to be acted "on as ordinary levers."

2nd. "In the employment of a cranked paul for carrying a "stump, with which the gatings in the oscillating tails engage, "so that any pressure brought to bear on the stump by the levers "or oscillating tails shall throw the longer arm of the said cranked "paul into a recess in the bolt, transferring the strain from the

" stump to the strong pin upon which the paul turns. I employ " one spring to act both on the oscillating tail and on the paul, " from which it results that there is not sufficient binding between " the oscillating tail or lever and the stump to serve for picking " the lock by pressure. The cranked paul may be maintained in " its position by friction alone, without the action of a spring; " in this case the bolt is provided with projections to bring the " paul to its normal position whenever the lock is fully locked."

In respect to latches, the invention consists " in hanging latch " bolts by the spring, which throws them forward, the said spring " being made to perform the combined office of spring and link " rod. The lower end of the spring is rivetted, or screwed, or " otherwise fixed to the rear end of the bolt, and on the sliding " of the said bolt the said rear end of the bolt describes a curve, " having the spring for a radius. The slight curvilinear motion " of the rear end of the bolt produces no sensible deviation from " rectilinear motion in the free end of the bolt."

[Printed, 1*s*. 2*d*. Drawings.]

A.D. 1866, June 7.—N° 1570.

GRIVEL, Antoine, the younger.—This invention relates to the so constructing safes and depositories as to defeat attempts made to force or perforate the doors and parts, and to locks adapted to safes and similar purposes. The locks described are constructed on the permutation principle, with and without keys, also combination tumbler locks with keys.

1st. The object of the invention, in respect to safes, is to prevent either side of the door being bulged or forced open, by providing the inside of the door with auxiliary projecting bolts taking into suitable catches; also providing the door with hooks and cramps actuated by the bolts of the lock, and forming inside the door projecting rebates, fitting into spaces made inside the safe. Drilling is prevented by lining the safe with hardened steel, having a roughened surface similar to a file.

2nd. The lock described throws " four or a greater number of " bolts working either in a circular or rectilinear direction, and " either parallel with or at right-angles to the sides of the safe. " The bolts, which work together, are set in motion by an eccentric " mounted on a pin, forming a substitute for the key. This pin " or stem carries ratchet discs, which, together with their pawls, " serve to produce the combination for locking the safe. The

" locking bolts are direct-acting in opposite directions, or they " may move laterally, and parallel with the sides of the safe, and " take into mortices made in the double inner frame fixed to the " safe body.

Describes a modification of the above arrangement, in which a system of segmental bolts, actuated by the combination lock, is employed.

3rd. Combination key locks applicable to safe doors. Two kinds are described. The first has a double-anchor escapement, the security of which may be multiplied according to the degree of security required. The lock contains a series of tumblers, each with two teeth, which engage with spaces made in a series of discs connected to the bolt, the number of tumblers and discs coinciding. Another tumbler lock is described, its chief feature being the combination in connection with parts for preventing picking or tampering.

[Printed, 1*s.* 10*d.* Drawings.]

A.D. 1866, June 12.—Nº 1597.

KURZ, FREDERICK WILLIAM.—(*Provisional protection only.*)—This invention relates to the construction of locks adapted to safes, and (appropriately modified) to general purposes.

The lock first described contains two strong bolts connected " together by a bar running at right angles thereto, the whole " sliding together and actuated by a toothed pinion working into " a toothed rack securely fixed to the middle of the said bar. " The spindle which carries the pinion is also provided with a " disc, having a notch or projection formed thereon. Two or " more tumblers are provided, which successively catch into or " against the notch or projection, and prevent the disc and " spindle from turning till the tumblers are pressed back by a " projection from the bit of the key. The end of the spindle is " squared, so that the pipe of the key (which is similarly formed) " fits over it, and turns the spindle, whilst the bit of the key " raises the tumblers. One turn of the key will shoot the bolt, " but, by giving two or more turns, according to the length of " the rack, the bolts can be thrown a greater distance into the " recesses made to receive them, and thus a greater security wil " be afforded. The lock is further secured by means of fixe " wards, and by a revolving guard (inside the keyhole), whic

" turns with the key, and closes the keyhole before there is any
" action on the tumblers."

As modified for ordinary use, in place of the rack and pinion, an eccentric or other suitable contrivance is employed to act direct upon the bolt, the eccentric also performing the office of the disc, as described in the previous arrangement. The eccentric is mounted on the square spindle, and the tumblers are raised by the key-bit; the fixed ward or wards and the revolving guards are retained.

[Printed, 4*d*. No Drawings.]

A.D. 1866, June 14.—N° 1616.

CARTER, James.—This invention relates to an apparatus adapted to open, close and fasten windows, doors and shutters. It consists of two long screws vertically disposed (in the case of window sashes) one on each side. These screws are mounted in suitable bearings, and fixed on one end of each screw there is a bevel pinion in gear with two pinions fixed, one on each end of a horizontal shaft. To each side rail of the sash a bracket is rigidly attached, and these brackets are drilled and tapped to receive the screws, which respectively pass through them. Rotary motion imparted to the horizontal shaft by means of a crank, handle, or otherwise, causes the two screws to revolve simultaneously, and by reason of the bracket nuts being fixed to the side rails of the sash, the latter is caused to rise or fall in accordance with the direction in which the screws are made to revolve; when down the sash is considered fastened, as it cannot be raised without turning the horizontal shaft, so that no other fastening is required.

If the nut on one side of the sash be made detachable, the sash may swing open on the other screw and bracket nut, after the manner of a hinge fixed in the usual way on one side of a door or shutter.

[Printed, 1*s*. 2*d*. Drawing.]

A.D. 1866, June 16.—N° 1635.

MACDONALD, Archibald.—(*Provisional protection only.*)—The object of this invention is, to improve upon the constructional details of a lock for which Letters Patent, dated May 5, 1862, No. 1328, were granted to Herbert Allmann.

In this said lock are a number of wires or small steel rods, which are raised to certain relative positions by the steps of the key-bit, and act the part of tumblers; these wires in practice are liable to bend when the key is operating, and to remedy this objection is the chief aim of the present invention which consists in :—

1st. Arranging the tumbler wires in convolutions, one part being coiled on a pin fixed in a plate that moves with the lock bolt, the tail ends of the wires bearing on a pin fixed to the plate, or they may be carried thence to another point of resistance. By this means sufficient length of wire even in small locks may be attained.

2nd. The application of a plate below the bolt, to transmit its movement and effectually cut off its communication with the key-hole. The same result in a spring bolt may be effected by making the spring of sufficient breadth.

3rd. Mounting the fence plate through which the wires pass on a fulcrum pin, whereon it has limited liberty to rock in the event of the tumbler wires being lifted too high by a false key. The plate is held in position by a spring bearing against its tail, and when thrown out it acts as a stop to the bolt.

4th. Applying a glass covering plate, through which, when the lock is not fixed in position, the works can be seen.

[Printed, 4*d*. No Drawings.]

A.D. 1866, June 16.—N° 1638.

HOPPS, George Henry.—(*A communication from George Kitteridge.*)—(*Provisional protection only.*)—This invention relates to a permutation lock composed of a number of discs or wheels with ratchet teeth and springs to prevent them turning only in the right direction. The lock has no key, its security depending upon the particular combination or arrangement of the discs which, having liberty to move on a common centre, are relatively set, there being a concentric circle of letters or figures to guide the operator. The bolt is moved by a handle on a spindle which actuates a curved arm that has liberty to move when the discs are brought into position according to a pre-arranged combination. When a fresh combination is required, it is necessary to unscrew a cap and after removing a plate and the curved arm, take out the discs and re-arrange them relatively by means of the springs, taking note of the particular position by means of the number of each ring, then replace the other parts and screw everything in its place.

[Printed, 6*d*. Drawing.]

A.D. 1866, June 25.—N° 1688.

BROOMAN, Clinton Edgcumbe.—(*A communication from Chretien Goynaud and Jacques Eugene Dollier.*)—This invention relates to locks adapted as fastenings to trunks, to act as a kind of padlock, and to fasten belts, dog collars, etc.

The lock consists of two main parts, viz., the lock and the hasp or staple plate. In some locks the staple plate is fixed to the box or trunk, and the lock is fitted to the movable flap which usually carries the staple. In other locks the staple is movable and carried by the flap, and the lock is fastened to the box by means of the lock plate. The works of the lock are of simple construction operated by a key, the keyhole according to the description of lock, being either in the flap or in the lock plate, when the latter is attached to the box.

Locks for belts, dog collars, and similar purposes, are so combined with the buckle as to admit of the tightening of the belt, whilst the lock prevents its being unfastened.

[Printed, 8*d*. Drawing.]

A.D. 1866, July 2.—N° 1750.

BONNEVILLE, Henri Adrien.—(*A communication from Louis Jean Pierre Silvestre.*)—This invention relates to an alarum lock, its mechanism being combined with clock-work for the purpose of setting in motion a hammer, which is held in position ready to strike a bell should any attempt be made with false keys to pick the lock. The alarum may be as shown, fitted in an enlargement at the end of the lock case, or detached from the lock and fixed contiguous, having connection therewith by means of wires, or rods and cranks; the lever of the hammer is held by a rod which, excepting the true key be used, is pushed back by a guard piece, and sets the hammer free to strike, the actuating power being a spring contained in the usual way in a barrel, and wound up by a key.

The striking bolt of the lock is projected by a spiral spring carried on its stem, and the other mechanical details of the lock are suitably contrived to co-operate with the mechanism of the alarum.

[Printed, 8*d*. Drawing.]

A.D. 1866, July 17.—N° 1865.

SHORLAND, WILLIAM BURROW.—(*Provisional protection only.*)—This invention relates to a mode of so securing knobs or handles on the shafts or spindles of locks, bolts or latches, that they are easy of adjustment to suit doors differing in thickness.

It consists "in making the shafts square, and screwing one or " both ends with a screw thread, the screw thread taking off " the corners of the square shaft, but leaving sufficiently flat " sides for the square hole in the handle to take hold of, and " in fitting a screw nut to one or both handles, so that when the " handles are placed upon the shaft the screw nuts can be rotated " in or upon the handles; this is done by making a recess in " the handle for the screw nut, or in making the screw nut to " grasp a dovetail part upon the handle upon which it can turn. " The screw nut is prevented from rotating when the handle is " adjusted by a set screw or by a key placed in a groove formed " in the square shaft which enters a notch in the screw nut."

[Printed, 4*d*. No Drawings.]

A.D. 1866, August 1.—N° 1977.

BILLING, EDWIN ISAAC.—This invention relates to the construction of metal safes, to the fastenings employed, and the manner of securing them.

These safes are composed of two hollow metal spheres, one capable of partially rotating on an axis within the other, a space being left between them. The outer sphere may be enclosed by a rectangular casing, and the interspace thus formed between the casing and the outer sphere, filled up with a suitable non-heat-conducting material. Each sphere is furnished with a circular door, and each door is secured by a central lock, which shoots four bolts into recesses formed in the parts of the sphere which surround the door. The bolts of each door are respectively operated by eccentric curves in a central disc, which is turned in either direction by a key externally, the security parts of the locks employed being of approved construction. The edge of each door is screw-threaded, and the edge of the opening into each sphere is furnished with a corresponding screw thread, so that the doors, which are capable of turning on the hinged brackets which carry them are, when closed, screwed into their places level with the periphery of each spherical body; the bolts are then shot and the safe is secured. When the inner safe is locked, it is caused to turn half a revolution on its axis by means of a pair of small bevel wheels, respectively fixed, one on the axis of the inner sphere, and the other on the end of a spindle, which may be turned from the outside.

[Printed, 8*d*. Drawing.]

A.D. 1866, August 22.—N° 2152.

MINNS, Henry Royall.—This invention relates to the main resisting hand bolts and fastenings of fire and thief-proof safes, and to a fire-resisting compound, adapted for packing into the cavities formed between the outer and inner casings of the bodies and doors of safes.

The bolts or fastenings described are disposed round the narrow chamber formed between the strong front door plate and the inner case, which contains the fire resisting compound. There are three bolt plate fastenings respectively equidistant on each side, and one top and bottom. These bolt plates are not intended to slide; they are partly circular plates variously shaped to suit their several positions, are severally mounted on pivots or axes fixed projecting from the inner surface of the door, and when caused simultaneously to perform a portion of a revolution by means of flat connecting rods and by other flat rods jointed to a central disc, which is mounted on the main central spindle that passes through the door and carries externally the handle or knob, a portion of each bolt plate is projected into a slotted opening in the door frame. A part of the periphery of each bolt plate is cut away, in order that when withdrawn by reversing the motion of the handle, they may severally lie within the cavity of the door and just level with its periphery. When by turning the handle to secure the door, and the fullest or longest limb of each bolt plate has entered its respective slotted opening in the door frame, the power of the handle is for the time being suspended by a small lock of approved construction, which is fixed inside the door in a position to shoot its bolt into the periphery of the central disc.

[Printed, 1*s*. Drawings.]

A.D. 1866, September 27.—N° 2492.

CORSON, William Reid.—This invention relates to fixing (it is stated) in a cheap and simple manner, knobs or handles to the spindles of locks and door furniture, so as to suit doors of any ordinary thickness.

It "consists in the use of a square or any other suitable form " of spindle having a screw thread cut partially down its length " from either end, and provided with two or more narrow longi- " tudinal rectangular slots formed at right angles to each other " at or near each end of such spindle. The knobs or handles " are made to screw upon the threads formed on the spindles " so as to be adjustable to the greatest nicety to any ordinary " thickness of door, and a hole or slot is constructed through the " neck or narrow part of each of such knobs or handles."

"When a knob or handle is screwed up to its position on a " door, a cotter, peg or wedge of any suitable shape, but by " preference flat sided, is placed in the similarly shaped hole or " slot formed in the neck or narrow part of such knob or handle, " which cotter, peg or wedge passes through one of the slots cut " in the spindle, thus preventing such knob or handle from " becoming unscrewed again or turning without also turning the " spindle with it."

[Printed, 8*d*. Drawing.]

A.D. 1866, September 28.—N° 2511.

PRICE, Strother.—This invention relating to lifting and securing window sashes, shutters, and similar articles, is supplementary to prior letters patent granted to this inventor, and dated November 23, 1864, N° 2924, for an apparatus "for lifting or " assisting to lift window sashes," &c., consisting mainly of a spring barrel, and the chief object in the present invention is the dispensing entirely with sash lines where one or more spring barrels are applied. It consists " in forming round the spring barrel, which " is fitted in any convenient part of the frame, a series of cogged " teeth, and in fitting in a groove formed in the side of the " window sash a rack, the teeth of which gear into the teeth on " the spring barrel. As soon as the sash has commenced to be " raised the spring of the barrel comes into play, causing the " barrel to rotate, so that the cog teeth by gearing into the rack " lift or assist in lifting the sash. To charge or wind up the

" spring before putting the barrel in position, I prefer to employ " a paul which as the barrel is rotated takes into the cog teeth, " and prevents the barrel turning in the reverse direction, and as " soon as the barrel is placed in position, and is in gear with the " rack, I release the paul by means of a key or otherwise. To " fasten the sash at any required position, I employ a plate fitted " at one end with a spiral spring and stud, and having near the " other end a slot or piece cut therefrom corresponding with the " cog teeth. I insert this plate through the frame of the spring " barrel, and the spiral spring keeps the full portion of the plate " between two of the cog teeth, and prevents the barrel turning, " but on pushing the stud so as to press the plate inwards the " slot of the plate comes over the cog teeth, and the barrel is free " to rotate; or to fix the sash I employ a plate with one or more " teeth or projections which take into one or more teeth of the " rack. Sometimes I dispense with the spiral spring, and the " plate is then simply drawn out, and pushed in by hand to hold " or release the barrel."

When applied to shutters, a modified arrangement of the parts is required.

[Printed, 10*d*. Drawing.]

A.D. 1866, October 8.—N° 2582.

ROBERTS, John Henry.—This invention, relating to a fastening adapted to windows and other places, consists, as applied to windows, in securing upon the outer sash a plate formed with a slot, wherein to and fro, a button is free to slide. To the other sash is secured another plate, to which a third plate is hinged so as to be capable of lapping upon the plate on the outer sash. The hinged plate is also slotted, and when the two plates are lapped together, the slots respectively coincide, the slot in the hinged plate having a circular enlargement at one end corresponding to the size of the button. When desired to fasten the window sashes, the hinged plate is lapped upon the plate on the outer sash; the button passing through the circular enlargement is then slid along the slots, and the window is secure. The form of the button and the direction of the slots in the two plates may be modified.

[Printed, 6*d*. Drawing.]

A.D. 1866, November 3.—N° 2856.

CHUBB, John, and CHALK, William Henry.—This invention, relating to safes and strong rooms, refers first to the manner of disposing and actuating the main security hand bolts which secure the door. The bolts "are arranged to move in a diagonal "or inclined direction, and they enter holes or recesses with in-"clined sides corresponding in respect to each bolt with the "inclined direction in which the bolt is moved. The several bolts "will thus by reason of their inclined positions in respect to the "sides and ends of the door and the door-frame tend to prevent "the door frame being bent outwards, and the door being thus "forced open. In carrying out this part of the invention it is "preferred to employ a circular plate on the handle or spindle of "the door, such circular plate being formed with curved grooves "or slots in order that when the handle is turned in one direction "all the carriers of the bolts, and consequently the bolts them-"selves, will be moved outwards in diagonal directions, and when "the handle is turned in the reverse direction the carriers and "bolts will be moved in the opposite directions, and in all cases "each bolt will be moved in an inclined or diagonal direction in "respect to the sides and ends of the door. The form of the "carriers of the bolts and of the bolts also may be varied; the "number of bolts employed may also be varied. Each of the "carriers has generally affixed to or formed on it two or more "inclined bolts which pass through passages with inclined sides "corresponding with the inclined positions of the bolts, and the "outer ends of the bolts enter holes or recesses formed to receive "them in the door-frame; and in some cases it is desirable that "the edges of the bolts should be inclined and enter similar "openings with undercut sides coinciding with the form of the "bolts."

For the purpose of detaining the bolts after being shot by the handle, two small locks of approved construction are fitted inside the door, one on each side of the main handle. The bolts of these locks interlock with the carriers of the main bolts, and for the time being suspend the power of the handle to withdraw them. The frame which receives the door, comprising the front edge of the body of the safe, is strengthened by bridge or trough iron or steel.

The other part of the invention, relating to the construction of strong door-frames to iron safes and the description of material employed, is more particularly described in the series of Abridgements relating to "Safes," &c.

[Printed, 10*d.* Drawing.]

A.D. 1866, November 14.—N° 2987.

CLARK, WILLIAM.—(*A communication from Auguste Léon Gennerat.*)—(*Provisional protection only.*)—This invention, relates to the adaptation to latch and other locks of an alarm or signal bell designed to give audible notice or warning that the handle or bolt of the lock or latch is being acted upon. The bell is fixed to a spindle rivetted to the movable covering plate of the lock. To the bolt of the lock is fixed a small projection which, when the bolt moves, acts upon a piece that raises the hammer, and before the bolt is drawn sufficiently to be clear of its staple, this piece escapes from the projection on the bolt, and the hammer then being free is caused immediately to strike by the reaction of a spring. When desired, the action of the parts may be suspended, or thrown out of gear relatively by a small stop-piece, which restrains the reaction of the spring.

[Printed, 8*d.* Drawings.]

A.D. 1866, December 12.—N° 3265.

CHATWOOD, SAMUEL.—This invention, relating to the construction of safes, and safety key boxes, has for its object the so effectually securing the doors of safes, as to render them capable of resisting heavy strains. It is described by the inventor as follows:—

"I fix into the back of the door, studs with heads at their " ends; these studs when the door is shut pass through holes or " slots in the frame of the safe. Behind the frame at the parts " where these holes or slots are formed, a bar or bars are applied, " so as to be able to slide on the frame of the safe a short distance; the slides have holes in them corresponding with the " holes in the frame, and when the door shuts the studs also enter " the holes in the slides; these holes like the holes in the frame " are just of a size to pass the heads of the studs, and they are " also slotted on one side for a width equal to the thickness of " the stem of the studs, thus endway motion can be given to the

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des after the door has been shut, so as to bring the stems of e studs into the slots communicating with the holes, and so he heads of the studs bcome locked; or the locking plates may be otherwise formed to catch and retain the heads of the studs. Motion may be given to the slides from a spindle and handle, and the spindle may contain a lock by which it may be held stationary."

Modifications in the method of fixing the studs are also described.

Key boxes consist of small cylindrical cases of steel or of partially converted iron. Each box has an open end which is closed by a screw stopper, wherein is fitted a lock that shoots its bolt into a slot in the case.

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1866, December 29.—N° 3420.

ADAMS, Arthur John.—(*Provisional protection only*.)—This invention, relating to locks and latches, is described with reference to a door lock, the class of locks to which it is stated, the invention is more particularly applicable.

"The bolt by preference, works pendulous from a centre, maintaining its position from gravitation or a spring; the latter I prefer. This bolt or catch may be acted on by a handle and spindle, so arranged that it may be adapted for the various thicknesses of doors to which they may be applied. In order to keep the bolt extended as in the condition of a lock, a series of tumblers (which may be varied in quantity to any given or indefinite number) are so arranged that when elevated and retained by a toothed lever, an opening is formed in the tumblers for a portion of the bolt or catch to fall in, when the catch or lock will be in a condition of being unfastened; but this portion may be varied in its shape to suit any variation of form desired in the series of tumblers, and as additional security the projections on the key for actuating the tumblers may be transposed at pleasure, the tumblers being arranged accordingly; thus the condition of the lock as secure fastening may be varied at the caprice of the owner."

The unlocking is effected in the usual way by a key.

When used as a till or drawer lock, the bolt and tumblers are actuated by springs.

[Printed, 4*d*. No Drawings.]

A.D. 1866, December 31.—N° 3441.

ALLMAN, Herbert.—(*Provisional protection only.*)—This invention relates to the construction of lever or tumbler locks, and to their keys, consisting in,—

1st. So adapting the configuration of the tumblers of a lock to the form of the key, that the latter during one revolution shall come twice into contact with the tumblers.

2nd. The use of spring or plain washers between the tumblers that they may work free, and retain position when they are not furnished with springs.

3rd. Constructing the tumblers of locks of Muntz's yellow metal.

4th. Stamping the tumblers of locks out of metal sheets, electrotyped or coated with tin, zinc, copper, brass, or silver.

5th. Making one or more levers or tumblers longer than the rest, in order that they may be adjusted first for the passage of the stump.

6th. So shaping the longest levers that they will close the keyhole when lifted.

7th. So combining two or more sets of tumblers, that when one set is being acted upon by the key, the other set will close the keyhole and so obstruct picks.

8th. Employing steel for making the tubes of keys, the ward-bits and the bows being attached thereto by soldering.

9th. Bringing pressure or friction on the levers to retain them when moved by a key or pick.

10th. Polishing, scouring, or burnishing the plates out of which the parts of locks are to be subsequently stamped.

11th. In some cases, stamping keys out of Muntz's yellow metal.

[Printed, 4*d*. No Drawings.]

APPENDIX.

A.D. 1818, December 10.—Nº 4320.

BARRON, James.—This invention relates to the making and fixing of knobs on doors, spindles of locks, drawers, and cabinets. The main body or centre of these knobs is made of wood inclosed by a circular metallic or brass rim that forms a kind of cup, the base whereof is rivetted to the neck piece attached to the rose plate; a hole is drilled centrally through the latter and the neck into the cup, and tapped to receive the screwed end of a lock spindle which is secured by a nut inside the cup, the wood center being afterward fitted into the rim, which is then closed round it. When the knob is intended to be fixed to a door or drawer front, a headed screw is inserted through the wood of the door or drawer from the inside and screwed into the neck and rose plate, which carries a projection that sinks into the wood and prevents its turning back, so as to become loose upon this screw.

[Printed, 6*d*. Drawing. See Rolls Chapel Reports, 8th Report, p. 130.]

A.D. 1829, February 7.—Nº 5770.

SMITH, Andrew, and KITCHEN, William Henry.—This invention relates to the raising, lowering, and fastening of window shutters, to fastenings adapted to French casements, and to bolt and lock-bolt fastenings adapted to doors.

Shutters are raised, lowered, and fastened by means of two vertical screws, disposed in recesses, one on each side of the window frame; the nuts which engage with these screws are carried by two lateral projections, reepectively attached to the opposite corners of the upper end of the shutter, so as, when the screws are turned in one or other direction, to cause the shutter to rise or to gradually fall, simultaneous motion being imparted to the screws, by mitre wheels on their lower ends working into corresponding mitre wheels on the ends of a cross shaft, which is turned by a handle. Instead of screws, endless chains may be employed.

The fastener for French casements consists of two bolts, a pper and a lower, vertically disposed in a recess sunk in the ed of the upright meeting stile of one of the windows. The contiguous ends of these two bolts are furnished respectively with a tooth rack relatively inclining at right angles, and both these racks engage with a toothed pinion which, when turned by the knob or handle, projects the bolts edgewise into a grooved recess sunk in the meeting stile of the other window, the bolts relatively diverging at the same time, so that the end of the upper bolt enters a socket in the underside of the top frame of the window, and the bottom end of the lower bolt enters a socket in the window sill.

Door bolts and lock bolts. Each door is furnished with four bolts relatively diverging, two horizontally and two vertically, the outer ends of the two former when the bolts are projected, entering sockets in the door frame, one on each side, whilst the vertical bolts enter sockets, one in the underside of the top of the door frame, and the other in the sill or floor. The inner end of each bolt is furnished with a toothed rack, and all the racks engage with one toothed pinion, which is mounted on the follower or socket that is moved by the key or the knob spindle, and when turned thereby, it shoots or withdraws all the bolts simultaneously. In some cases, in order to obtain additional security, a tumbler, which requires adjustment by the key-bed before the pinion can have liberty to act, is introduced.

[Printed, 1*s*. 8*d*. Drawings. See Repertory of Arts, vol. 10 (*third series*), p. 261; London Journal (*Newton's*), vol. 5 (*second series*), p. 26; Register of Arts and Sciences, vol. 4 (*new series*), p. 39; Rolls Chapel Reports, 7th Report, p. 129.]

A.D. 1835, May 13.—N° 6832.

CHUBB, Charles.—This invention relates mainly to the construction of safes and similar receptacles, and in part to additional means of security obtained by the mode of applying, fitting, and working the locks, bolts, and fastenings employed.

This latter part of the invention is effected by the "application " of small locks to the strong doors of such receptacles in a " suitable manner for closing and preventing all access to certain " cells or cavities which contain handles, whereby several internal " bolts for fastening the door or doors of the receptacles can be " bolted or unbolted by moving such handles with the hand, the " said small locks being either applied to lock up and secure " small trap-doors by which the said cells or cavities are closed, " and access to the handles of the bolts prevented, or else the

“ said small locks may be applied to retain moveable filling-up
“ plugs or stoppers, whereby such cells or cavities are closed, and
“ thus prevent them from being opened. Or the said small locks
“ may otherwise be applied to retain such filling-up stoppers
“ from being turned round in the cells or cavities which are
“ filled up by them, and which must in that case be of a circular
“ figure, and must be adapted to bolt or unbolt the internal
“ bolts of the doors, when a turning motion is given to the said
“ filling-up stoppers within their cavities or cells. The cells or
“ cavities . . . . are formed in strong pieces of metal, which are
“ firmly affixed against the outside surface of the door, the
“ projection outwards from that surface being formed with such
“ gradually inclined slopes therefrom, as will not permit blows
“ of a hammer to operate with any effect for displacing such
“ pieces of metal.”

The small lock shoots two bolts in opposite directions, whereby the door or trap which closes the cell or cavity is secured, each bolt co-operating with a separate set of tumblers operated separately, one set and its bolt by the first half turn of the key, and the second set and bolt by the second half turn, which completes the revolution. Access being obtained by thus unlocking the cavity, the handle is then lifted and turned by hand, and by means of eccentric curves in a circular disc plate fixed on the spindle to which the handle is attached, four or more sliding bolts radiating therefrom, are withdrawn from recesses in the parts which surround the main door or lid. When the bolts are shot the handle can be folded flat in the cell or cavity.

According to a modification, the small lock is attached to a circular plug which fits into and fills the mouth of the cell or cavity, and instead of the folding down handle, a portable handle is used for turning, by means of two studs, the plate which actuates the main bolts.

[Printed, 1*s*. 6*d*. Drawings. See London Journal (*Newton's*), vol. 17 (*conjoined series*), p. 25; Engineers' and Mechanics' Encyclopædia, vol. 2, p. 107.]

A.D. 1840, June 17.—N° 8548.

PROSSER, RICHARD.—This invention relates to the manufacture of buttons, knobs for doors, rings, and other articles from potters' clay and flint or feldspar, not according to the usual method of moulding them from the mineral in a damp plastic state, but by compression, the combined minerals being, according to this new process, first reduced to a powder, and operated upon when dry.

The preparing process consists in pounding or grinding the clay and feldspar either separately or together, and then passing the product through a very fine sieve, the object being to reduce it to an equable and uniform state of comminution.

The machine employed is similar to a fly-press, which is furnished with hollow swages or matrixes corresponding with the required form of the articles to be produced, recesses for the attachment of shanks or spindles to the manufactured articles, being formed by suitable projections in the moulds, whence, after the process (the great pressure employed having solidified granulated mineral), the articles are removed in a solid state, and glazed and burned after the manner of treating articles of porcelain manufactured by the ordinary process. The surfaces of the articles produced by this new process may receive either intaglios or relief ornamentation, according to the manner in which the matrixes and dies are prepared.

A Disclaimer and Memo. of Alterations is appended to the Specification of this invention, confining the mineral used in the new process to potters' clay alone.

[Printed, 8*d.* Drawing. See London Journal (*Newton's*), vol. 27 (*conjoined series*), p. 123; Mechanics' Magazine, vol. 33, p. 593; Inventors' Advocate, vol. 4, p. 50; Transactions of the Society of Arts, vol. 54, p. 179.]

A.D. 1840, August 17.—N° 8605.

YOUNG, JOHN.—" Improvements in the manufacture or con-
" struction of knobs, handles, frames, tablets, boxes, and other
" ornamental articles, applicable to the decoration of houses and
" domestic furniture."

[No Specification enrolled.]

A.D. 1840, October 1.—N° 8649.

JOYCE, THOMAS.—This invention relates to a peculiar kind of ornamentation applicable to knobs and handles of doors, locks, and furniture, and also to many other articles, such as finger plates, curtain bands and pins, bell-pulls, &c.

It consists of small mirrors of silvered glass, in form either flat, concave, or convex, inlaid or let into the most prominent surfaces, or those parts of the articles to which they are applied that first meet the eye. their configuration varying, so as to harmonise with or suit the shape of the article which they are designed to ornament.

In the case of door knobs of wood or other material, these small mirrors or reflectors are set into a circular recess made in the end of the knob, surrounded by a band or ring of metal or other material, which stands out slightly in relief, and protects the glass from injury. Reflectors of burnished steel may be used for the same purpose.

[Printed, 8*d*. Drawing. See Mechanics' Magazine, vol. 34, p. 301. Inventors' Advocate, vol. 4, p. 230.]

A.D. 1843, January 28.—N° 9614.

WEILD, WILLIAM.—This invention relates to apparatus adapted to opening, closing, and fastening windows, to a contrivance for closing windows and doors so as to prevent the admission of currents of air, pulley fastenings for blind cords, and to various other apparatus beyond the limits of this series of abridgments.

Sash fasteners.—Several of these are described. According to the 1st the sashes are drawn together and fastened by an eccentric suitably mounted on one sash, so as to be capable of engaging with a segmental projection mounted on the other sash; 2nd, in this arrangement the sashes are drawn together by a dovetail wedge, and secured by a spring bolt and rack; 3rd, so applying a spring bolt and rack to an ordinary sash fastening, that the unfastening of it from the outside is prevented; 4th, a sash fastener consisting of a circular wedge or incline so attached to one sash as to be capable of acting on the inclined side of a box attached to the other sash.

Describes a mode of preventing the jarring and shaking of window sashes, and a method of excluding draughts, by inserting laths in grooves sunk in the sash sides.

Blind pulleys.—Various contrivances for the purpose of holding and tightening blind cords are described and illustrated; also

A contrivance for preventing the admission of draughts beneath doors and folding windows, consisting of a plate covered with leather or cloth, and caused to rise and fall by an inclined bolt, which comes in contact with the door or window frame.

[Printed, 2*s*. Drawings.]

A.D. 1844, October 22.—N° 10,361.

OSMOND, George.—This invention relating to keys and fastenings for doors, drawers, window sashes, dining tables, and other articles, consists of:—

1st. A sliding bolt, adapted for doors or windows, is mounted on a bolt plate, to which it is secured by a number of rings or straps attached to the plate; a portion of each ring is cut out to form a passage for the bolt handle, but these passages are not relatively in a direct line, so that after the handle has passed through the passage in one ring, it must be turned a portion of a revolution in order to bring it opposite the next, and having passed that it must be turned again for the third, and so on, its security being increased by this compound action. As a further security a stop is applied, which requires raising before the bolt can be withdrawn.

2nd. An apparatus for fastening the first of two folding doors by shutting the second. When the second door is closed it depresses an arm that is mounted on one end of an axis and kept upright by a spring, causing an arm or projection on the other end of the axis to rise and enter a recess in the bottom of the first door.

3rd. Relates to the construction of a key in two parts, one part carrying the bit on a short stem remains in the tubular keyhole of the lock, and the other part has a hollow shank, inside which there is a small lateral projection or neb which, when it is applied slides into a groove cut longitudinally either straight or curved in the stem of the bit, which can then be turned in either direction.

4th. Relates to the adaptation of screws as fastenings for dining tables, and

5th. To window fastenings, of which three modifications are described; the first moves a bolt by means of an incline, the second by means of a spiral spring, and the third has a hinged piece carrying a bolt head, that is forced into a recess by a spring.

The remainder of the specification relates to apparatus for suspending looking glasses, and blind and map rollers.

[Printed, 2*s*. Drawings.]

A.D. 1846, May 19.—N° 11,212.

PERRY, Stephen.—This invention relates to the application of india-rubber to a variety of purposes, such rubber having first been subjected to those processes which impart to it greater tenacity and strength, and more permanent elasticity, notwithstanding variations of temperature, and the other influences to which whilst in use it may be exposed.

Amongst the numerous uses to which according to this invention it may be adapted, is its application to locks and latches as a substitute for the steel and other springs usually employed. It is applied in the form of rings or bands of suitable substance, one end being attached to or held by a rigid part of the lock or latch, and the other end is hooked on or affixed to the part of the lock to be moved or acted upon, the effect being produced by the reaction of the rubber, which is kept in a state of tension.

These rubber springs are described as applicable to locks generally, to spring bolts and latches, and to various other useful purposes.

[Printed, 2*s.* 4*d.* Drawings.]

A.D. 1847, February 8.—N° 11,566.

KENNEDY, William Sadler.—This invention relates to "attaching plain or ornamental surfaces of earthenware, china or glass, to articles made of metal, wood or other meterial."

1st. Describes a variety of moulded articles in china and earthenware, consisting of ornaments for furniture and other purposes, hat pegs, curtain pins, plates, and door knobs, the object being so to fix the pin, screw, stud, or spindle, by which or to which they are to be secured, that it cannot be seen in front.

2nd. Relates to similar articles of glass, which are attached by the same means. It is described as applied to door knobs moulded in glass, and consists in forming during the moulding process, a narrow opening up the neck of the knob leading to a larger cavity inside. The end of the spindle which enters the knob has two small projections formed on its opposite sides, and the shape of the opening is made to correspond; after the end of the spindle is inserted to the depth of the opening, it is partly turned so as to bring the projections on the end across the internal cavity, and whilst in this position a suitable cement is forced into the side passages which admitted the projections, so a entirely to fill up the internal space; by this means when the cement has solidified the knob is firmly fixed on the spindle end.

[Printed, 10*d.* Drawing. See Patent Journal, vol. 3, page 290.]

A.D. 1849, September 27.—N° 12,786.

NEWTON, William Edward.—(*A communication.*)

This invention relates to metallic spindles, shanks, etc., adapted for attachment to substances made of glass, china, and similar minerals and materials when used in the manufacture of door and furniture knobs, door plates, escutcheons, and a variety of other articles, the object being in their construction to use the smallest quantity of metal consistent with the required strength, in order to avoid any appreciable crystalline disturbance of the mineral or material of which the knob or article is composed during the time of cooling or hardening. To this end the spindles or shanks, which are to be inserted into the mineral or vitreous mass at the proper moment during the process of manufacture, are either tubular with a longitudinal slit or "composed of diverging flanges, and made out of the smallest amount of metal " consistent with suitable strength, in proportion to the bulk " of mineral admissible in the construction of the desired article, " and the said shanks being characterised by thinness, elasticity, " hollowness, and centre vent when the shanks are tubular, and " the equivalents of hollowness and centre vent where the shanks " consist of diverging flanges or the equivalents of diverging " flanges, whereby and on account of which structure the difference between the natural expansion of metals and minerals, " when thus brought into juxta-position, is diminished in its " dangerous tendency to a comparatively small amount."

[Printed, 1*s*. Drawing. See London Journal (*Newton's*), vol. 37 (*conjoined series*), p. 170; Mechanics' Magazine, vol. 52, p. 280; Patent Journal, vol. 9, p. 58.]

A.D. 1850, March 23.—N° 13021.

NEWTON, Alfred Vincent.—(*A communication.*)—"Improvements in the preparation of materials for the production of " composition or compositions applicable to the manufacture of " buttons, knife and razor handles, ink-stands, door knobs, and " other articles where hardness, strength. and durability are " required."

[No Specification enrolled.]

A.D. 1855, August 21.—N° 1888.

LONGSDON, Robert.—This is an invention of an apparatus designed for raising a safe or receptacle for books and documents out of a vault or strong room by the hydrostatic pressure of a column of water, applied in a cylinder beneath a vertical hydraulic ram, whereon the receptacle is superposed; the pressure or weight of a body of water gradually accumulated in a vessel is also employed to operate a bolt which acts as a fastening for securing the receptacle from the attempts of burglars during the night.

That part of the invention designed to operate the bolt or catch consists of a cistern which is placed in the strong room and contains two copper vessels respectively fixed to the ends of two metal arms laterally projecting from an axis within the cistern relatively at right angles, one below the level of the other, and the end of the axis or shaft passing through the side of the cistern is so connected by suitable mechanical arrangements to the bolt or catch, that the latter is withdrawn when the shaft turns. When, according to the first part of the invention the pressure of the hydrostatic column is shut off or removed from beneath the ram, the latter descends into the cylinder, and the receptacle sinks with it into the vault. A weighted lever arm fixed on the shaft is, when the ram descends, tilted over the vertical plane of the shaft's center, and by its falling a short distance on the other side, the shaft is caused to move round sufficient to shoot the bolt or catch into a recess in the ram; the upper vessel is filled with water, which by very slow degrees is allowed to drop or drain out through a suitable orifice into the lower vessel; this process is regulated to last some hours, until the time for opening the vault approaches, when the accumulated water in the lower vessel becoming superior in weight to the weight of the lever, the latter is overbalanced and is gradually raised to a vertical position over the vertical plane of the shaft, and eventually by its falling over the center the shaft is caused to turn back again, and thereby the bolt is withdrawn and the ram set free. A modification of this self-acting fastening is also described, and as an additional security suitable locks may be employed during the time the receptacle is in the vault.

[Printed, 1*s*. Drawing.]

A.D. 1855, November 22.—N° 2632. (* *)

PRICE, George.—This invention relates to the preservation of papers and documents from the effects of steam or vapour when inclosed within an iron safe constructed upon the "vapourizing "principle," according to "Milner's patent, 1840," such safe being exposed to the action of fire. It consists in depositing such papers and documents within a box or receptacle of wood or other suitable material, which box is to be hermetically sealed, and provided with an expansion valve, and then placed in the iron safe. In order to seal the box effectually, it is lined with india-rubber or other elastic material, and the lid is made to close all round upon an india-rubber bed, or an endless india-rubber cord may be placed in a groove round the margin of the underside of the lid, so as to close upon the top rim or edge of the box, which instead of being flat is shaped to an angle or sharp edge, which impresses the india-rubber and makes a steam or an air-tight joint, when the lid is closed and fastened.

This box is furnished with a suitable lock, and also, if large in size, with metal clips or straps which, when the lid is closed, are drawn and forced on to studs with inclining surfaces.

The expansion valve is fitted inside the lock which is placed outside the india-rubber joint, the air escaping through the key hole.

[Printed, 4*d*. No Drawings.]

A.D. 1863, March 3.—N° 594.

PRICE, George, and DAWES, William.—This invention relates to safes, to their locks and fastenings, and to means for protecting the lock mechanism from the action of acids and chemicals.

1st. The large lock and lock case hitherto employed for securing the doors of safes is dispensed with, and instead thereof sliding bars or bolts actuated by a knob or handle, are made to constitute the main security fastenings, and when the door is closed and secured by them, the power to move them back by the handle is prevented by the bolt of a small lock, which interlocks the main bolts. The bolts are fitted to slide in grooves formed by lapping round the front edge of the safe strong angle iron, dovetailed together at the corners and well rivetted to the safe body, the same kind of angle iron being also used to strengthen the back of the safe. The front edge of each bolt projects from the groove and is notched at intervals throughout its whole length, so that when disposed in the grooves they form all round the door frame a series of internal projections, and round each side of the door there is fixed a corresponding series of projecting lugs, which when the door is being closed pass between the projecting parts of the bolts, which then by means of the knob or handle are caused to move endwise, so as to slide the several projections formed on the bolts, in front of the lugs on the door, and thus secure it. A second set of cross bolts also worked by a handle may be employed to secure the main sliding bolts, and either one set or the other may be detained by the bolt of the small lock which may be fitted in a mortise in the door and be of approved construction, unpickable and gunpowder proof. Each of the sliding bolts may be acted upon by a separate lever attached to the follower, or one lever only may be employed to actuate one bolt, which by means of small pinions at the corners and corresponding racks on the ends of the bolt, may be made to impart motion to the rest.

2nd. This part of the invention relating to a method of laminating or casting white metal on the surface of wrought-iron plates to render them drill proof is more particularly noticed in the series of Abridgements relating to " Safes," &c.

3rd. The inside and works of the small lock are protected " from the action of 'acids' or other chemicals applied through " the 'key hole,' and to effect this we 'electro-gild' them, or " coat them to any desirable thickness with gold or other suitable " metal for resisting the action of 'acids' or other chemicals."

[Printed, 8*d*. Drawing.]

A.D. 1865, February 9.—N° 364. (* *)

CHUBB, John.—This invention relating to the construction of safes and strong-rooms, has for its object means for preventing or rendering the " door of an iron safe less liable to be forced open " by the introduction of thin hard steel wedges between the " frame of the door and the bevelled edge of the door, so as to " take advantage of the incline on the interior edge of the door; " the frame in place of being made flush as heretofore, is made " to project beyond the door, so that the door will be recessed; " and further to protect the door and the keyhole or hole through " the door of a strong-room or iron safe, a hardened steel bar is " applied external of the door and from side to side thereof, and " such bar is fitted within a groove across the door. It is preferred that this bar should be of a curved convex form externally,

" and flat on the side where it comes next the door. At each " side of the framing of the door is fixed or formed a projecting " socket, into which the bar is slid after the door has been shut " and fastened or locked. It is preferred that the sides of the " groove across the door in which the bar is fitted should be " undercut in order better to insure that no thin steel wedges " shall be introduced between the door and the bar. The bar is " fixed in position by the bolt or catch of a lock." If desired more than one bar may be employed.

[Printed, 8*d*. Drawing.]

A.D. 1865, February 22.—N° 499.

SHORE, George Nathaniel.—This is an invention relating to the construction of iron safes and strong rooms, and to the fastening bolts which, with a view to their more secure fixing, " are formed with holes through them, and steel rods or bars are " passed from the outside through such holes and in such manner " that each succeeding rod locks or fastens the preceding one by " there being recesses in each bar or rod into which the sides of " the next rod or bar passes. Each rod or bar is formed with a " conical end or enlargement which is hardened, and such enlargement is recessed flush in a hole in the door frame. When " the last of the set of bars or rods has been inserted, it is locked " by a small lock provided for the purpose. . . . . . The rods " pass through sockets or tubes provided in the thickness of the " body of the safe and through holes in the heads of the main " bolts in addition to interlocking one another as described. " Their external ends are countersunk into the body of the safe " so as to present a flush surface. The last rod inserted, which " may be either one of the four rods employed, has a recess " formed in it into which the bolt of the lock is shot so as to " lock this rod. In order that the lock on the inside of the door " of an iron safe or strong-room may be fixed more securely, and " that the screws by which the lock is fixed to the door may not " be turned back by drilling through the door where the ends of " the screws come, the ends of the screws are hardened, and " when they have been driven in they are secured from being " turned back by screws passed through the head of the screw in " vertical or inclined directions."

[Printed, 10*d*. Drawing.]

A.D. 1865, February 28.—N° 559.

HART, John Matthias.—The object of this invention, relating to the construction of the doors and covers of safes and depositories, and to the parts connected therewith, is to double, treble, and in some cases quadruple the strength and power to resist the efforts of wedges or levers employed to force open a safe door whilst held by its principal bolts. The details of constructions will be found more particularly described in the series of Abridgments relating to "Safes," &c., but so far as concerns the locks, bolts, and method of fastening, the invention consists in fixing vertically, in the strongest possible manner to that side of the door-frame which receives the ends of the main bolts when thrown, one, two, or more plates or flanges, their front edges so projecting forwards as to form interspaces a limited depth between, and in like manner fixing to the corresponding side of the door a similar number of plates projecting inwards, so that when the door is closed, the front edges of the plates thereon enter the interspaces between the plates on the side frame. Cut through each plate, according to the number of fastening bolts or bolt heads there are slotted openings so arranged as to form collectively when the door is closed and the front parts of the plates packed together alternately side by side, direct open passages through them for the reception of the bolt heads when the latter are thrown or projected by the handle or lock. In this manner the resisting power of the fastening is increased by the successive alternate holdings, in proportion to the number of plates employed. This principal of fastening is extended to several modifications, and various devices are employed for moving the main bolts which, when shot according to one modification may be detained or engaged by secondary bolts that in turn are to be securely retained by suitable locks.

Another modification exhibits a connected series of bolts that, when thrown, are stopped by a filling-up piece which is caused to slide between the inner ends of the bolts and a suitable abutment that holds them in position, the bolts and filling-up piece being actuated by handles, and detained by locks.

[Printed, 2*s*. 10*d*. Drawings.]

A.D. 1865, March 2.—N° 585.

CHATWOOD, Samuel.—One part of this invention relates to a window safe, designed for securing in their windows the property of jewellers, silversmiths, and others; the other parts relate to the construction of safes generally and to the fastenings, the object being to render safes capable not only of resisting all attempts to open them, but also the action of fire. The advantages to be attained by the invention and the constructional details will be found more particularly described in the series of Abridgments relating to " Safes," &c.

In respect to the fastenings employed the inventor says, " I " sometimes dispense with the ordinary bolt or bar holes in the " sides of safes, chests, and frames of doors, and use instead " thereof the blade of T-iron or the flange of angle iron, part or " parts of which I cut away to form openings. The bolts or " bars of my large lock I cause to project, so that when the safe " is unlocked the projecting bolts or bars of the lock case will be " opposite the openings in the inner frame of the safe before " named. I then, with suitable apparatus, give a vertical motion " to the bolts or bars on the vertical sides of the lock case, and " a horizontal motion to the bolts or bars on the horizontal sides " of the lock case. I sometimes place the projections on the " inner frame with a rib at back, and I also place a rib on the front " of the bolts or bars, or I reverse the said ribs, the object being " to prevent lateral strain by wedging or other applied force."

According to another fastening device designed to prevent the forcing open the doors of safes, bolts or bars screw threaded at the ends are used for the purpose of screwing " into the sides of " the safe, or into any apparatus fixed to the said sides of the safe " when the door is closed, and so secure the sides to the said " door; or I make the said bars or bolts with projections upon " them, so that when the door is closed they may be shot into " cavities, grooves, or slots, and then turned partially round, the " projections hooking themselves into the sides of the safe be- " hind the cavities, grooves, or slots prepared for that purpose; " the said bolts or bars are acted upon by the handle of the door, " or by a suitable key or keys through the intervention of levers, " wheels, cams, or eccentrics, as may be found most convenient, " and then secured by the bolt or bar of the small lock, so that " they cannot be withdrawn. In any of the before-named cases " I use a small lock or locks to secure the large bolts or bars or " other fastenings of the safe."

[Printed, 1*s*. 4*d*. Drawings.]

A.D. 1865, March 8.—N° 653.

TAYLOR, ARTHUR EDWIN.—(*Provisional protection only.*)—This invention relates to iron safes, the construction of which is such as to present no available crevice for the introduction of wedges or instruments used for the purpose of forcing or bulging out the sides in order to open the door. The method of fastening and mode of introducing the key is described by the inventor as follows :—" I prefer to dispose the lock at the side of the safe, " especially if it be built into a wall, and I apply a hollow shield " or channel covering the keyhole. In order to insert the key, I " mount axes, one on either end of a long frame; these axes carry " chain wheels, and the one axis is adapted to receive the key, " while the other is furnished with a winch handle ; chain pullies " are fitted on each axis, which communicate with each other by an " endless chain. The end of the frame and chain pulley carrying " the key is inserted and passed along the channel of the shield " till opposite the keyhole, and inserted, when the key may be " turned by giving motion to the winch handle and corresponding " chain pulley; the frame is of sufficient length for this to remain exposed, while the other part is inserted in the shield, " and held in position for the key to enter the lock as described."

[Printed, 4*d*. No Drawings.]

A.D. 1865, March 11.—N° 695.

TANN, JOHN.—The object of this invention relating to the construction of safes and their fastenings consists in :—

Rendering safes drill-proof by rivetting inside the iron plates used in their construction, bars of steel or iron which have been welded together and hardened. The further details of this part of the invention will be found described in the series of Abridgments relating to " Safes," &c.

That portion of the invention which relates to the fastenings, consists in strengthening the ends of the fastening bolts by attaching a "piece of metal on the top side of each bolt head or in one " length along the whole number of heads to come level with the " inside of the door, or I bring what is termed the tail piece up " level, or I attach a piece of metal on the door to come level with " the top of the bolt; either of these means will prevent the bolt " from twisting inwards when the door is attempted to be forced

" forward. And in double bar safes, in addition to the former, I " attach a bar or series of pieces either on the lock case or door " that closes first, or on both when there is a lock on each door, " these bars or pieces to come level with the upper edges of the " bolt holes, the effect of which will be to throw the pressure on " the door instead of on the rim of the lock case in the event of " forcing."

The inside edge of the door and the rebate in the door-frame are respectively dovetailed, and these dovetails, if attempts be made to force open the door, engage together and prevent it.

[Printed, 1s. Drawing.]

A.D. 1865, March 14.—N° 714.

HODGSON, Edmund Dorman.—This invention relates to the construction of safes with sliding doors, and to the fastenings or means employed for securing them. The front frame of the first safe described has two open panels, one on each side, and one central panel solid or closed. The open panels are closed by doors which slide in grooves in the top and bottom of the frame, and finally when closed enter grooves formed respectively to receive them in the two ends. The doors when opened slide behind the central panel, and as both doors slide top and bottom in the opposite ends of the same grooves, it is only possible to have one of the doors open at a time. The doors when closed are secured by means of two block pieces, one at the top and the other at the bottom. These block pieces are disposed in the grooves, and in length they correspond exactly with the distance between the sliding doors when the latter are closed, so that the bottom block only requires raising a little and the top block lowering to bring them between the corners of the doors. Three modes are devised for effecting these movements of the blocks simultaneously. The first described consists of a vertical shaft placed behind the central panel; the two ends of this shaft are screw threaded, respectively right and left handed, for the purpose of screwing into correspondingly threaded holes in the two blocks, so that when the shaft is turned the bottom block is raised and the top block is simultaneously lowered into position, and they thus form top and bottom packing blocks between the two doors. The reverse movement of the shaft is prevented by the small detaining lock which, when the key is turned shoots its bolt through a slot in the shaft. Doors of ordinary safes may be secured in the same manner, and instead of operating the blocks by screws on a shaft, levers or other suitable mechanical devices may be employed. In some safes the central panel is made open and fitted with a door.

[Printed, 1*s.* 4*d.* Drawings.]

A.D. 1865, March 31.—N° 904.

COOK, Thomas.—This invention relates to the construction of safes, and the mode adopted for fastening the door. The safe described and illustrated is wagon shaped, and the door, which is disposed at one end, is circular, fitting into a door frame of similar configuration. The door is furnished internally with a central boss, and is hung in position upon a strong axis or screw bolt, which passes direct through the door, and upon which the latter is free to turn. The outer projecting end of the bolt is screw cut with a quick thread, which engages with a corresponding screw-threaded hole, formed lengthwise through a boss or barrel affixed to the free end of a crane bracket, that has liberty to swing to and fro in suitable bearings fixed to the side of the door frame. The door is furnished all round its periphery with a narrow projecting flange, which closes against the front surface of the door frame, and projecting from the inside all round the door is an annular flange, upon the external periphery of which is formed a screw thread of precisely the same pitch as the screw on the bolt. The inside of the door frame is screw cut to correspond, so that when the door is swung round to the frame, and caused to revolve on the bolt by means of a knob handle, the respective screw threads mutually engage, and the door is quickly screwed up to its place, with its flange close against the door frame. The turning back is prevented by a strong sliding bolt, which is moved diametrically across the door by a turn of the handle, its end passing through the annular flange of the door into a recess in the door frame, and in this position it is secured by the three headed bolt of a small suitable lock, which is fixed inside the door plate, wherethrough there is a small keyhole for the passage of the key.

[Printed, 10*d.* Drawing.]

A.D. 1865, April 12.—N° 1045.

HART, John Matthias.—This invention relating to locks and bolting apparatus applicable to the doors of safes and other depositories, is designed to obtain increased security and protection.

" For this purpose the axle of the handle or other mover of the " bolt is provided not only with a follower for following and " fixing the bolts, and an arm or surface to give motion to such " bolts, or with a series of such arms or surfaces to operate a " series of bolts, but also with another arm or surface, or series of " them, to act upon and place in position a sliding abutment, or " a series of them, for holding the bolts in position. I form each " of the levers (sometimes called tumblers) of the locks with a " series of gatings, and the bolts with corresponding series of " stumps at various regular or irregular distances apart, and each " of these levers has also other slot openings or notches to receive " other stumps from the bed, or other fixed or stationary plate " of the lock, so that in the event of the axis or of any one or " more of the stumps being cut or forced away the parts may " still be held together by others of them, so as to prevent the " withdrawal of the bolt or bolts. These levers may be of various " regular or irregular shapes. The belly or that part of each of " the levers acted upon by the key (when the bolt or a series of " them is not operated by such key), is formed with a projection " acting as a stop to enable the key to hold the levers in position " during the locking or unlocking by the means employed to " operate the bolts."

Several modifications are described. According to the first, the locking and abutment bolts are moved in either direction by prongs or arms attached to the follower, which is mounted on the main spindle and turned by a knob or handle; when shot, the backward movement of the follower is stopped by the end of a lever, which is put into the requisite position by the action of the bolt of the small lock when operated by the key.

The tumbler levers of the lock described in one modification have two series of gatings or openings, one series to receive and act with a series of stationary or fixed stumps, whilst the other series receives and acts with movable stumps, the key, for the purpose of operating both sets, being furnished with two separate ward-bits.

[Printed, *4s. 8d.* Drawings.]

A.D. 1865, April 13.—N° 1056.

CHUBB, John, and GOATER, Robert.—(*Provisional protection only.*)—This invention relates to the construction of safes, the object being, so to strengthen the door frame and the parts which receive, or the holdings for the main bolt fastenings, that attempts to force out or bulge the sides, will be of little or no avail. To this end around the internal margin of the door of an iron safe or strong-room, there is formed or fixed at intervals coincident with the direction in which the bolts are thrown, a series of projections, and around the doorway or frame there is, with an opening through each, a corresponding series, so fixed, that when the door is closed the several projections on the inside of the door pass through the openings in the several projections on the door frame, and the ends of the main fastenings bolts when shot, pass at the back of the last-named projections, and through holes in the projections which are fixed to the door, so that each bolt end acts as a cotter to prevent the door being forced open. The forms of these projecting parts which mutually engage in pairs, may be varied, but in all cases they must have plenty of strength and be made, by preference, of steel.

[Printed, 4*d*. No Drawings.]

A.D. 1865, July 22.—N° 1911.

DIAPER, William.—This invention relates to the construction of thief-proof fire-resisting safes, the formation of the lock case, and to arrangements for supporting and rendering the ends of the fastening bolts capable of greater resistance. To this end, the top, bottom, and two sides of the inner cavity of the door, wherein the main bolts are disposed, are formed of double angle iron or steel, as also all the front portions top, bottom and sides, of the cavity which surrounds the body of the safe internally, the lining plates in both cases being attached to the inner flanges, which when fixed, respectively project relatively at right angles, so that the inner flange of the double angle iron which is fixed round inside the door frame, laps against the central plate of the angle iron which is fixed round the door, and through apertures coincident in these two surfaces, the main fastening bolts are thrown, their extreme ends engaging in suitably formed notches made in one side of strong projecting bolt studs, which are screwed into the inner margin of the door, and passing through the plate of the door frame angle iron, meet and engage at right angles with the fastening bolts inside, so that in this way a portion of the angle iron is embraced by each fastening bolt and the stud.

The other parts of the invention will be found more particularly described in the series of Abridgments relating to "Safes," &c.

[Printed, 8*d*. Drawing.]

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LONDON:
Printed by GEORGE E. EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty.